A-1561

OPPORTUNITIES FOR TIMBER-BASED INDUSTRIES IN GREENE COUNTY, ALABAMA

INDUSTRIAL DEVELOPMENT DIVISION
ENGINEERING EXPERIMENT STATION
GEORGIA INSTITUTE OF TECHNOLOGY

Project A-1561

OPPORTUNITIES FOR TIMBER-BASED INDUSTRIES IN GREENE COUNTY, ALABAMA

Prepared for

Economic Development Administration

and

Greene County Economic Development Commission

by

Tze I. Chiang
Senior Research Scientist

Industrial Development Division
ENGINEERING EXPERIMENT STATION
Georgia Institute of Technology
January 1974

Table of Contents

* * *

Tables

Page

Tables (continued)

Page

Figures

Acknowledgments

In the course of investigation in this study program, the author received much help from various sources. Since it is impossible to identify all of them in a small space, only major sources are acknowledged below.

The Scholarship, Education and Defense Fund for Racial Equality, Inc. (SEDFRE) provided one man-week of free time to conduct field interviews with non-respondents to a mailed questionnaire in a six-county area in Alabama in order to complete a designated survey. Both Mr. Kenny Johnson and Mr. William Kalt were most helpful in this regard.

Mr. Joe W. Graham, Executive Vice President of the Alabama Forestry Association, wrote an introductory letter for the survey mentioned. As a result of his letter, the rate of response to the survey was very high.

Many valuable opinions and suggestions came from either private companies or public forestry officials. The author consulted with Mr. Lee Settel of the Appalachian Southern Corporation, Mr. Robert Brouer of Chip-N-Saw, Inc., Mr. Kenneth Myers of the U. S. Forest Service in Atlanta, Mr. John M. McCullough and Mr. T. J. Lynch of the Alabama Forestry Commission, Mr. Robert L. Little and Mr. Larkin Wade of the Alabama Cooperative Extension Service, Auburn University, and Mr. Joe F. Christopher of the Southern Forest Experiment Station. All of them contributed their time generously to this study program.

Summary

This research program was initiated for the development of manufacturing opportunities in Greene County, Alabama, through wood utilization. To correspond with funding availability, the program was disaggregated into four phases. Phase I was concerned with timber resources in a six-county area -- Greene, Marengo, Hale, Pickens, Sumter, and Tuscaloosa counties -- in Alabama. Phase II dealt with the supply conditions for timber, logs, and lumber in the six-county area. Phase III identified potential wood products suitable for manufacturing in Greene County. Phase IV, the crown of the research program, involves a complex feasibility study or a series of feasibility studies concerning markets, investment requirements, production costs, and potential returns of products identified in Phase III. This report represents the study results of Phases I through III. Phase IV is still waiting to be financed.

In Greene County, 234,600 acres of land, or about 56% of all land area, were classified as commercial timberland in 1972, compared with 2.4 million acres or 69% of all land in the six-county area. Farmers owned 44% of the commercial timberland in Greene County, miscellaneous private owners held 40%, the forest industry had 15%, and other public interests held 1%. In the six-county area, miscellaneous private owners owned 42%, farmers had 31%, the forest industry owned 25%, and national forest and other public ownerships accounted for 2%.

About 36% of commercial timberland in the six-county area is in pine stands, 24% in oak and pine, and 40% in hardwood stands. This compares with Greene County's 26% in pines, 17% in oak and pine, and 57% in hardwoods. Hardwoods in Greene County are mostly bottomland hardwoods. In Greene County, sawtimber stands constitute 52% of all commercial forest lands, compared with 39% in the six-county area and 32% in Alabama. This indicates the superior timber quality in the county.

In Greene County, net gain (excess of growth over removal) in softwood growing stock was 2.2 million cubic feet in 1971-1972, compared with 38.6 million cubic feet in the six-county area. The cut-to-growth ratio was 71% in Greene County and 60% in the six-county area. In hardwood growing stock, Greene County had a net gain of 2.9 million cubic feet a year, compared with 17.3 million cubic feet in the six-county area. The cut-to-growth ratio was 59% in Greene County and 67% in the six-county area.

In softwood sawtimber, Greene County had a net gain of 15.9 million board feet a year in 1971-1972, compared with 164 million board feet in the six-county area. Removals amounted to 60% of the growth in Greene County, compared with 61% in the area. In hardwood sawtimber, Greene County had a net gain of 2.8 million board feet versus 26.7 million board feet in the six-county area. The cut-to-growth ratio was 85% in Greene County and 82% in the area.

Inventories of standing timber are important measures of timber resources. In Greene County, softwood growing stock totals 128.2 million cubic feet versus 1.4 billion cubic feet in the area. Hardwood growing stock totals 166.7 million cubic feet in Greene County and 1.2 billion cubic feet in the area. In sawtimber, Greene County had 552 million board feet of softwood sawtimber in 1971-1972 versus 5.5 billion board feet in the area. Hardwood sawtimber was 522 million board feet in Greene County versus 3.2 billion board feet in the six-county area. Softwood sawtimber measuring 15 inches and up in diameter constitutes 42% of the total in Greene County, 38% in the six-county area, and 35% in Alabama as a whole. In the case of hardwood sawtimber 15 inches and up, the proportion is 70% in Greene County, 58% in the six-county area, and 51% in Alabama. The superior quality of sawtimber in Greene County and in the area is evident.

Softwood growing stock in Greene County was projected to increase from 128 million cubic feet in 1972 to 220 million cubic feet in 1992, a 72% gain, while hardwood growing stock in the county was projected to increase only 32%, from 167 million cubic feet in 1972 to 220 million cubic feet in 1992. Softwood growing stock in the six-county area was projected to increase from 1,400 million cubic feet in 1972 to 2,174 million cubic feet by 1992, a 55% rise versus a 23% increase in hardwood growing stock, from 1,188 million cubic feet in 1972 to 1,465 million cubic feet by 1992. Softwood growing stock in Greene County accounted for 43% of all species in 1972 and was projected to reach 50% by 1992. In the six-county area, an increase from 54% in 1972 to 60% by 1992 was projected.

Softwood sawtimber in Greene County was projected to grow from 552 million board feet in 1972 to 933 million board feet by 1992, a 69% increase, while hardwood sawtimber was projected to rise from 522 million board feet to 658 million feet in the same period, a 26% increase. In the six-county area, the projection was for a 56% increase in softwood sawtimber and a 13% gain

in hardwood sawtimber. Softwood sawtimber accounted for 51% of all species in Greene County in 1972 and was projected to be 59% by 1992. In the six-county area, the projection was for a gain from 63% to 70%.

Per-acre net growth of growing stock is 45 cubic feet in the South, 56 cubic feet in Alabama, and 62 cubic feet in both the six-county area and Greene County. The average inventory of growing stock per acre is 828 cubic feet in the South, 947 cubic feet in Alabama, 1,079 cubic feet in the six-county area, and 1,257 cubic feet in Greene County. The per-acre volume of sawtimber is 2,513 board feet in the South, 2,977 board feet in Alabama, 3,635 board feet in the six-county area, and 4,577 board feet in Greene County. The high productivity of timberland in Greene County and in the six-county area is evident.

Seedling planting has a great bearing on the future supply of timber products in a given area. Alabama has had an impressive seedling planting program since the 1950's. The seedlings planted in the six-county area accounted for 10% of the state's total in 1951 and for 15% in 1971. Over 10 million seedlings, mostly southern pines, have been planted each year in the six-county area.

Pine pulpwood harvested in Greene County has varied from 15,000 cords to 39,000 cords a year since 1958, compared with 196,000 cords to 345,000 cords a year in the six-county area. Production showed a wide range of change from year to year; however, the long-term trend was upward. In contrast, hardwood pulpwood harvested showed a persistent increase since 1958 in both Greene County and the six-county area. In Greene County, the increase was from 2,000 cords in 1958 to 25,000 cords in 1972, and was projected to be 40,000 cords by 1978. In the six-county area, the increase was from 17,000 cords in 1958 to 210,000 cords in 1972, and was projected to be 350,000 cords by 1978.

Lumber production has fluctuated widely both in Greene County and in the six-county area. Softwood lumber production followed an upward trend, while hardwood lumber production showed a gradual decline on a five-year moving average line. These trends are expected to continue.

The production of hardwood crossties in the six-county area appears to be on a cyclic trend. Both Greene County and the six-county area produced an unprecedented number of crossties in 1972 because of increased railroad activities in relation to the current energy crisis. Crossties produced in the area totaled 90,215 pieces in 1972 and were projected to reach 115,000 by 1978.

Production of poles and pilings in the area does not show any consistent trend. Poles are selected sound and straight timber in a certain size range, and they are commanding premium prices in the market. Greene County has been an important producer of veneer logs in the six-county area because of the superior sawtimber in the county. The county accounted for about one-fourth of the veneer log supplies in the area in 1971.

A survey of loggers and woodworking plants in the six-county area was conducted in 1973 to learn firsthand the supply conditions of wood raw materials in the area. Of 61 woodworking plants in the area, 40 responded to the survey. In general, the supplies of timber and sawlogs are good to adequate in the area, especially in the case of softwood sawtimber. However, a small number of companies contacted did express uncertainty concerning hardwood sawtimber supplies and expectation of higher prices on sawlogs in the future. Wood residues available for sale in the area totaled 27,530 tons annually, of which 7,530 tons were solid wood wastes and 20,000 tons were not-solid wood wastes. Nearly all woodworking plants contacted expressed an optimistic outlook concerning their products. Both softwood and hardwood lumber were selling well. Pallets, crossties, pine plywood, hardwood dimension stock, boxes and crates, tool handles, skis, turnings, millwork, molded plugs, and furniture parts all were experiencing good to excellent market demand in the area.

Eight wood products grouped in four manufacturing enterprises were selected as potential opportunities for Greene County. These four manufacturing opportunities are a hardwood processing center, a Chip-N-Saw operation, a southern pine plywood plant, and a wood manufacturing complex. The hardwood processing center would produce lumber, crossties, pallets, and wood chips. The production ratio of each product in the center would depend upon log supply conditions, market demand, and product price. All four hardwood products have a strong market demand. The proposed center, with output capacity of 20,000 board feet per eight-hour day, would cost $350,000 to $500,000 in capital outlay. Direct labor requirements would total 30 to 35.

A Chip-N-Saw operation, designed to produce pine studs and wood chips, is proposed to take advantage of the increasing pine and softwood timber volume in the six-county area. The operation would process pulpwood-size timber into pine lumber economically with wood chips as by-product. Wood chips would be sold to pulp mills locally, while pine studs would be sold for housing and

construction purposes in the East. A Mark II model with one-line operation at 60,000 board feet to 80,000 board feet output per eight hours would cost $2.5 million. Direct labor requirements would be 22. A Mark II model with two-line operation at 90,000 board feet to 120,000 board feet output per eight hours would cost $4.5 million. Direct labor requirements would be 30.

The production of southern pine plywood has had a phenomenal growth in the past decade, and the growth is expected to continue because of the freight advantages of southern mills over western plants. A pine plywood plant in Greene County would have a freight advantage of $10 to $20 per thousand square feet over West Coast plants in shipping to eastern markets. A plant with annual capacity of 90 million square feet on a 3/8-inch thickness basis would cost $6 million in capital outlay, and about 180 direct laborers would be required to run the plant.

Also proposed for Greene County is a wood manufacturing complex to produce poles, lumber, southern pine plywood, wood particleboard, and wood chips. Straight and sound pine logs would be screened and processed as utility poles, which are commanding a premium price in sales to wood treating plants. Lumber production would consist of 30 million board feet of pine and 20 million board feet of hardwoods a year. Small logs would go through a Chip-N-Saw operation, while large logs would be processed by a conventional sawmill. Pine and softwood veneer logs would be processed into pine plywood, with annual output of 90 million square feet on a 3/8-inch thickness basis. All wood wastes generated in the complex would be processed into wood particleboard, with an annual output of 20 million square feet on a 3/4-inch thickness basis. A wood manufacturing complex on such an operational scale would require a capital outlay in the range of $20 million to $25 million. Direct labor requirements would total 200 to 250 workers.

INTRODUCTION

In February 1973, the Industrial Development Division, Engineering Experiment Station, Georgia Institute of Technology submitted a proposal entitled "The Development of Manufacturing Opportunities in Greene County, Alabama, through Wood Utilization" to the Scholarship, Education and Defense Fund for Racial Equality, Inc. (SEDFRE), New York, New York. The project did not materialize as proposed because of funding difficulties. However, because of the need of Greene County and the merits of the proposal, the original research program was disaggregated into four phases, corresponding with availability of funds. Phase I was concerned with timber resources in a six-county area -- Greene, Hale, Marengo, Pickens, Sumter, and Tuscaloosa counties -- in Alabama. Phase II dealt with the supply conditions for timber, logs, and lumber in the six-county area. Phase III identified potential wood products suitable for manufacturing in Greene County. Phase IV involves a complex feasibility study or a series of feasibility studies concerning market trends, marketing conditions, investment requirements, production costs, and projected returns on products or enterprises identified in Phase III.

Phase I and Phase II were funded by the Economic Development Administration, U. S. Department of Commerce under two purchase orders, No. 3-45716 and No. 3-34718. Phase III was financed by the Greene County Economic Development Commission, Eutaw, Alabama. Phase IV, the crown of the whole research program, is still awaiting a sponsor. This report is prepared to fulfill research agreements on Phases I through III under the sponsorship of the Economic Development Administration and the Greene County Economic Development Commission. In general, the purposes of the report are as follows:

1. To give an in-depth analysis of timber resources in Greene County and in the six-county area.
2. To provide a broad review of the demand for and the supply of timber and wood products in Greene County and in the six-county area.
3. To identify potential wood products most likely to succeed as manufacturing enterprises in Greene County, Alabama.

The report discussion is organized under five major headings: (1) recent trends in commercial forest land and timber resources in Greene County and in the six-county area, (2) outlook for and projections of timber resources in Greene County and in the six-county area, (3) demand for timber products in the six-county area, (4) supplies of timber and wood products in the six-county area, and (5) potential wood manufacturing industries for Greene County.

Greene County lies in the west-central part of Alabama, about 10 miles east of the Mississippi border, 100 miles southwest of Birmingham, 40 miles southwest of Tuscaloosa, 125 miles west of Montgomery, 160 miles north of Mobile, and 25 miles north of Demopolis, a fast-growing inland dock city. Detailed economic data concerning the county can be found in two publications prepared by SEDFRE and may be obtained from the Greene County Economic Development Commission, Eutaw, Alabama. The two publications are Greene County, Alabama: An Opportunity for Business, April 1972, and Greene County, Alabama: A Balance Sheet for Action, December 1971.

RECENT TRENDS IN COMMERCIAL FOREST LAND AND TIMBER RESOURCES IN THE SIX-COUNTY AREA

Commercial Forest Area

Commercial Timberland. Some 2,400,000 acres, or 69% of 3,491,000 acres of land in the six-county area, were classified as commercial timberland in 1972. Areas classified as commercial timberland vary widely in timber-producing potentials, but all are judged capable of growing at least 20 cubic feet of timber per year, and are suitable, either now or prospectively, for timber harvesting. In Greene County, 234,600 acres of land were classified in 1972 as commercial timberland, or about 56% of its total land area.

Of the 2,400,000 acres of commercial timberland in the six-county area, about 10% were in Greene County, 10% in Hale County, 17% in Marengo County, 18% in Pickens County, 16% in Sumter County, and 29% in Tuscaloosa County.

Trends in Areas of Commercial Timberland. The six-county area registered an increase of 86,000 acres of commercial timberland between 1952 and 1972. The increase was due to the planting of pine seedlings on abandoned farmlands, and the rate of increase has been greatly reduced in recent years. Greene County's timberland trend runs counter to that of the area. Between 1952 and 1972, the county lost 18,000 acres of commercial timberland, or about 7% of the acreage in 1952. The loss was caused by agricultural uses and highway and urban developments. Detailed statistics on all land, commercial timberland, and commercial timberland as a percent of all land in 1952, 1962, and 1972 are given in Table 1.

Ownership of Commercial Timberland. Miscellaneous private owners, such as business and professional people, wage and salary workers, housewives and other non-farm owners, represent the largest class of ownership of commercial timberland in the area. In 1972, these owners held 1,015,000 acres, or 42% of the total area of commercial timberland. In the same year, farmers owned 31%, the forest industry had 25%, and national forest and other public ownerships accounted for 2%. In Greene County, farmers owned the largest share or 44%, miscellaneous private owners held 40%, the forest industry had 15%, and other public interests held 1%. Details are given in Table 2.

There were 12,239 forest landowners in the six-county area in 1969. About 59% of forest lands in the area belonged to 605 large timberland owners, each

Table 1

LAND AREA AND COMMERCIAL FOREST LAND IN THE SIX-COUNTY AREA AND IN ALABAMA, 1952, 1962, AND 1972

County	All Land (thousand acres)	Commercial Timberland (thousand acres)			Commercial Timberland as Percent of All Land		
		1952	1962	1972	1952	1962	1972
Greene	420.5	252.7	262.8	234.6	60	62	56
Hale	424.3	236.5	251.6	248.0	56	59	58
Marengo	626.0	365.5	399.6	402.6	58	64	64
Pickens	567.7	404.2	422.4	427.5	71	74	75
Sumter	589.5	354.8	358.9	390.6	60	61	66
Tuscaloosa	863.3	700.1	690.0	696.2	81	80	81
Six Counties	3,491.3	2,313.8	2,385.3	2,399.5	66	68	69
Alabama	33,029.8	20,756.2	21,742.2	21,333.1	63	66	65

Sources: U. S. Forest Service, Southern Forest Experiment Station, Forest Statistics for Alabama, 1953; Alabama Forests, 1963; Forest Statistics for Alabama Counties, 1972.

Table 2

COMMERCIAL FOREST LAND BY OWNERSHIP CLASS, 1972
(in thousands of acres)

County	All Ownerships	National Forest	Other Public	Forest Industry	Farmers	Miscellaneous Private
Greene	234.6	-	2.3	35.7	103.7	92.9
Hale	248.0	27.7	2.9	55.8	56.7	104.9
Marengo	402.6	-	1.0	79.2	165.0	157.4
Pickens	427.5	-	-	136.8	127.4	163.3
Sumter	390.6	-	1.4	124.0	155.0	110.2
Tuscaloosa	696.2	8.5	10.2	153.4	138.0	386.1
Six Counties	2,399.5	36.2	17.8	584.9	745.8	1,014.8
Alabama	21,333.1	629.5	391.0	4,204.9	6,732.5	9,375.2

Source: U. S. Forest Service, Southern Forest Experiment Station, Forest Statistics for Alabama Counties, 1972.

with 500 acres or more. Smaller owners owned 39%, and the balance of 2% was public land. Details are given in Table 3.

Table 3

FOREST LAND OWNERSHIPS BY SIZE AND BY NUMBER
IN THE SIX-COUNTY AREA, 1969

Size	No. of Owners	Acres	% of Forest Acreage
500 acres and up	605	1,412,215	59.2
1 to 500 acres	11,621	911,063	38.7
Public land	13	62,022	2.1
Total	12,239	2,385,300	100.0

Source: Alabama Forestry Commission.

Forest Type Groups. About 36% of commercial timberland in the six-county area is in pine stands, 24% in oak and pine, and 40% in hardwood stands. This compares with Greene County's 26% in pines, 17% in oak and pine, and 57% in hardwoods. However, hardwood stands in Greene County are mostly classified as oak-gum-cypress or so-called bottomland hardwoods along rivers, streams, and swamps, which are mostly unconvertible for other uses. Details are presented in Table 4.

Table 4

COMMERCIAL FOREST LAND BY FOREST TYPE, 1972
(in thousands of acres)

County	All Types	Longleaf-Slash Pine	Loblolly-Shortleaf Pine	Oak-Pine	Oak-Hickory	Oak-Gum-Cypress	Elm-Ash-Cottonwood
Greene	234.6	-	61.2	40.8	40.8	91.8	-
Hale	248.0	6.2	68.2	86.8	31.0	55.8	-
Marengo	402.6	-	151.8	99.0	59.4	92.4	-
Pickens	427.5	-	176.7	102.6	74.1	68.4	5.7
Sumter	390.6	-	117.8	55.8	124.0	86.8	6.2
Tuscaloosa	696.2	23.6	247.8	194.7	141.6	88.5	-
Six Counties	2,399.5	29.8	823.5	579.7	470.9	483.7	11.9
Alabama	21,333.1	1,483.6	6,380.1	5,016.9	5,913.1	2,443.5	95.9

Source: U. S. Forest Service, Southern Forest Experiment Station, Forest Statistics for Alabama Counties, 1972.

Stand-Size Class. Commercial forest land statistics by stand-size class are presented in Table 5. In Greene County, sawtimber stands constitute 52% of all commercial forest lands, compared with 39% in the six-county area and 32% in Alabama. The large percentage of sawtimber size existing in Greene County indicates the superior timber quality in the county.

Table 5

COMMERCIAL FOREST LAND BY STAND-SIZE CLASS, 1972
(in thousands of acres)

County	All Classes	Sawtimber	Poletimber	Saplings and Seedlings	Non-Stocked Acres
Greene	234.6	122.4	66.3	45.9	-
Hale	248.0	105.4	68.2	74.4	-
Marengo	402.6	158.4	118.8	125.4	-
Pickens	427.5	148.2	131.1	148.2	-
Sumter	390.6	192.2	68.2	130.2	-
Tuscaloosa	696.2	206.5	236.0	253.7	
Six Counties	2,399.5	933.1	688.6	777.8	-
Alabama	21,333.1	6,839.5	7,141.9	7,242.5	109.2

Source: U. S. Forest Service, Southern Forest Experiment Station, Forest Statistics for Alabama Counties, 1972.

Timber Growth and Removal

Comparison of figures on timber growth and removal reveals whether there has been a net gain or loss in the timber base in a given area. Continued excess of growth over removal results in increased timber volume; conversely, when growth is consistently smaller in volume than removal, the result is a diminished timber base. Alabama has enjoyed sustained net gains in timber volume of both softwood and hardwood, especially in the six-county area. The average growth per acre in the six-county area was 62 cubic feet in 1971-1972, compared with 56 cubic feet in Alabama and 45 cubic feet in the South as a whole.

Growing Stock. Annual growth, removal, and net change in softwood growing stock in 1971-1972 are presented in Table 6. In Greene County, growth amounted to 7.6 million cubic feet and removals totaled 5.4 million cubic feet, yielding a net gain of 2.2 million cubic feet. In the six-county area, the comparative figures were 96.5 million cubic feet, 57.9 million cubic feet, and 38.6 million cubic feet, while Alabama's relative figures were 788 million cubic feet, 525.9 million cubic feet, and 262.1 million cubic feet. The cut-to-growth ratio was 71% in Greene County, 60% in the six-county area, and 68% in Alabama.

Table 6

NET ANNUAL GROWTH, TIMBER REMOVAL, AND NET ANNUAL CHANGE FOR SOFTWOOD GROWING STOCK ON COMMERCIAL FOREST LAND IN ALABAMA, 1971-1972
(in millions of cubic feet)

County	Net Annual Growth			Timber Removal			Net Annual Change
	Total	Pine	Other	Total	Pine	Other	
Greene	7.6	7.5	.1	5.4	5.4	-	2.2
Hale	9.8	9.8	-	6.6	6.6	-	3.2
Marengo	16.4	16.0	.4	11.3	11.3	-	5.1
Pickens	19.8	19.7	.1	9.8	9.7	.1	10.0
Sumter	13.2	12.8	.4	13.8	13.8	-	- .6
Tuscaloosa	29.7	29.6	.1	11.0	11.0	-	18.7
Six Counties	96.5	95.4	1.1	57.9	57.8	.1	38.6
Alabama	788.0	780.3	7.7	525.9	521.6	4.3	262.1

Source: U. S. Forest Service, Southern Forest Experiment Station, Forest Statistics for Alabama Counties, 1972.

Data on hardwood growing stock in terms of annual growth, removal, and net change for 1971-1972 are given in Table 7. Greene County had a net growth of 7 million cubic feet, removal of 4.1 million cubic feet, and a net gain of 2.9 million cubic feet. The corresponding figures for the six-county area were 52 million cubic feet, 34.7 million cubic feet, and 17.3 million cubic feet versus 399.4 million cubic feet, 213.7 million cubic feet, and 185.7 million cubic feet for Alabama. The cut-to-growth ratio was 59% in Greene County, 67% in the six-county area, and 54% in the state.

Table 7

NET ANNUAL GROWTH, TIMBER REMOVAL, AND NET ANNUAL CHANGE FOR HARDWOOD GROWING STOCK ON COMMERCIAL FOREST LAND IN ALABAMA, 1971-1972
(in millions of cubic feet)

County	Net Annual Growth				Timber Removal				Net Annual Change
	Total	Oak	Gum	Other	Total	Oak	Gum	Other	
Greene	7.0	1.5	2.3	3.2	4.1	1.6	1.5	1.0	2.9
Hale	5.2	2.2	1.4	1.6	4.2	3.2	.2	.8	1.0
Marengo	8.3	4.2	1.5	2.6	8.0	2.7	1.3	4.0	.3
Pickens	7.4	3.2	2.3	1.9	6.5	3.7	1.1	1.7	.9
Sumter	10.6	4.2	2.9	3.5	5.7	2.7	.8	2.2	4.9
Tuscaloosa	13.5	5.3	4.8	3.4	6.2	3.3	1.3	1.6	7.3
Six Counties	52.0	20.6	15.2	16.4	34.7	17.2	6.2	11.3	17.3
Alabama	399.4	175.0	95.6	128.8	213.7	91.2	54.5	68.0	185.7

Source: U. S. Forest Service, Southern Forest Experiment Station, Forest Statistics for Alabama Counties, 1972.

Sawtimber. In Greene County, there is a comfortable growth-cut relationship for softwood sawtimber. Removals amounted to 60% of the growth in the county in 1971-1972, compared with 61% in the six-county area and 68% in Alabama. Greene County's net gain was 15.9 million board feet a year, compared with 164 million board feet in the six-county area and over one billion board feet in Alabama. As a whole, the six-county area has a strong base of softwood sawtimber. Loblolly and shortleaf pines are the predominant species in the area. The growth-removal relationship is depicted in Table 8.

The growth-cut relationship for hardwood sawtimber in the six-county area is not as favorable as that for softwood sawtimber. In 1971-1972, removals amounted to 85% of the growth in Greene County, 82% in the six-county area, and 68% in Alabama. In Hale and Pickens counties, cut exceeded annual growth. Greene County registered net growth of 18.5 million board feet versus removal of 15.7 million board feet, with a net gain of 2.8 million board feet. The six-county area had a net gain of 26.7 million board feet, compared with 339.2 million board feet in Alabama. It is reported that black gum and tupelo are much in demand; as a result, these two species have been overcut. Growth-removal statistics for 1971-1972 are given in Table 9.

Table 8

NET ANNUAL GROWTH, TIMBER REMOVAL, AND NET ANNUAL CHANGE
FOR SOFTWOOD SAWTIMBER ON COMMERCIAL FOREST LAND IN ALABAMA, 1971-1972
(in millions of board feet)

County	Net Annual Growth			Timber Removal			Net Annual Change
	Total	Pine	Other	Total	Pine	Other	
Greene	39.5	38.9	.6	23.6	23.6	-	15.9
Hale	51.8	51.8	-	29.1	29.1	-	22.7
Marengo	74.4	72.9	1.5	42.6	42.6	-	31.8
Pickens	75.5	75.4	.1	42.6	42.2	.4	32.9
Sumter	81.0	80.4	.6	66.5	66.5	-	14.5
Tuscaloosa	94.2	94.0	.2	48.0	48.0	-	46.2
Six Counties	416.2	413.4	3.0	252.4	252.0	.4	164.0
Alabama	3,153.5	3,122.6	30.9	2,143.4	2,129.1	14.3	1,010.0

Source: U. S. Forest Service, Southern Forest Experiment Station, Forest Statistics for Alabama Counties, 1972.

Table 9

NET ANNUAL GROWTH, TIMBER REMOVAL, AND NET ANNUAL CHANGE
FOR HARDWOOD SAWTIMBER ON COMMERCIAL FOREST LAND IN ALABAMA, 1971-1972
(in millions of board feet)

County	Net Annual Growth				Timber Removal				Net Annual Change
	Total	Oak	Gum	Other	Total	Oak	Gum	Other	
Greene	18.5	7.0	5.3	6.2	15.7	5.4	7.1	3.2	2.8
Hale	11.0	5.8	1.8	3.4	16.2	11.9	1.0	3.3	- 5.2
Marengo	26.2	18.0	2.5	5.7	23.7	9.6	2.1	12.0	2.5
Pickens	20.7	14.3	3.1	3.3	24.0	13.3	2.6	8.1	- 3.3
Sumter	38.5	18.9	10.6	9.0	16.9	8.7	2.0	6.2	21.6
Tuscaloosa	31.5	12.9	7.4	11.2	23.2	10.7	5.6	6.7	8.3
Six Counties	146.4	76.9	30.7	38.8	119.7	59.8	20.4	39.5	26.7
Alabama	1,048.2	538.5	199.5	310.2	709.0	310.8	167.6	230.6	339.2

Source: U. S. Forest Service, Southern Forest Experiment Station, Forest Statistics for Alabama Counties, 1972.

Logging Residues. Residues of trees left behind after logging operations constitute a sizable part of removals of growing stock -- some 7% of all softwood removals and 17% of all hardwood removals. Using this ratio of estimate, the six-county area had about 4.0 million cubic feet of softwood residues and 5.9 million cubic feet of hardwood residues left in the forest in 1971-1972 alone. This represents 81,000 tons of softwood residues and 120,000 tons of hardwood residues on a yearly basis. However, logging residues generally are widely scattered and remote from manufacturing plants.

Timber Inventories

Most timber harvests must come from trees now standing on commercial timberlands. The volume, species, tree diameter, location, quality, and ownership of this standing timber are of major importance in appraising the present and future timber situation in the six-county area. The following sections will discuss these factors in terms of growing stock and sawtimber.

Growing Stock. The inventory of softwood growing stock presently totals 128.2 million cubic feet in Greene County, 1.4 billion cubic feet in the six-county area, and 11.3 billion cubic feet in Alabama. The increase in softwood growing stock between 1952 and 1972 was 126% in Greene County, 114% in the six-county area, and 101% in Alabama. Growing stock refers to trees that are sound, well formed, and at least five inches in diameter. The four major southern pines make up most of the softwood volume. Loblolly pine alone comprises about one-half of the softwood inventory.

Hardwood growing stock totals 166.7 million cubic feet in Greene County, 1.2 billion cubic feet in the six-county area, and 8.9 billion cubic feet in Alabama. The increase in hardwood growing stock between 1952 and 1972 was 27% in Greene County, 30% in the six-county area, and 46% in Alabama. Oaks, sweetgum, hickories, tupelo, and black gum are the major species of the growing stock. Details on both softwood and hardwood growing stock are given in Table 10 and Table 11.

Sawtimber. Softwood sawtimber volume totals 552 million board feet in Greene County, 5.5 billion board feet in the six-county area, and 42.3 billion board feet in Alabama. Between 1952 and 1972, the softwood sawtimber volume increased 157% in Greene County, 111% in the six-county area, and 93% in Alabama. Sawtimber refers to live trees of commercial species, nine inches and larger in

Table 10

GROWING STOCK VOLUME ON COMMERCIAL FOREST LAND BY SPECIES GROUP, 1972
(in millions of cubic feet)

County	All Species	Softwood			Hardwood			
		Total	Pine	Other	Total	Oak	Gum	Other
Greene	294.9	128.2	120.0	8.2	166.7	45.9	57.9	62.9
Hale	299.9	175.0	174.8	.2	124.9	55.7	37.6	31.6
Marengo	419.0	243.5	237.2	6.3	175.5	71.4	35.8	68.3
Pickens	416.6	250.1	249.2	.9	166.5	70.9	58.8	36.8
Sumter	451.0	240.6	236.4	4.2	210.4	85.1	54.7	70.6
Tuscaloosa	707.0	362.1	360.1	2.0	344.9	154.5	109.5	80.9
Six Counties	2,588.4	1,399.5	1,377.7	21.8	1,188.9	483.5	354.3	351.1
Alabama	20,211.7	11,282.6	11,100.6	182.0	8,929.1	3,621.3	2,351.3	2,956.5

Source: U. S. Forest Service, Southern Forest Experiment Station, Forest Statistics for Alabama Counties, 1972.

diameter at breast height for softwoods and 11 inches and larger for hardwoods, and containing at least one saw log.

The size of the hardwood sawtimber inventory is 522 million board feet in Greene County, 3.2 billion board feet in the six-county area, and 21.2 billion board feet in Alabama. Oaks and gums are the predominant species. A large percentage of the hardwoods in Greene County is on bottomland. Between 1952 and 1972, the volume increased 26% both in Greene County and in the six-state area, while the state had a 30% increase. Detailed statistics concerning hardwood sawtimber volume are given in Tables 12 and 13.

The superior quality of the timber resources in Greene County and in the six-county area is evidenced by the existence of large proportions of sawtimber that is 15 inches or more in diameter. Softwood sawtimber 15 inches and up constitutes 42% of the total in Greene County, 38% in the six-county area, and 35% in Alabama. In the case of hardwood sawtimber, the proportion 15 inches and up is 70% in Greene County, 58% in the six-county area, and 51% in the state. Volume statistics in board feet on each diameter class are given in Table 14.

Table 11

COMPARISON OF GROWING STOCK VOLUME BY COUNTY AND BY SOFTWOOD AND HARDWOOD IN ALABAMA, 1952, 1962, and 1972
(in millions of cubic feet)

County	All Species					Softwood					Hardwood				
	Volume			1952-72 Change		Volume			1952-72 Change		Volume			1952-72 Change	
	1952	1962	1972	Net	%	1952	1962	1972	Net	%	1952	1962	1972	Net	%
Greene	188.1	211.7	294.9	106.8	57	56.7	85.4	128.2	71.5	126	131.4	126.3	166.7	35.3	27
Hale	187.0	203.9	299.9	112.9	60	67.3	116.4	175.0	107.7	160	119.7	87.5	124.9	5.2	4
Marengo	289.3	316.0	419.0	129.7	45	125.0	175.3	243.5	118.5	95	164.3	140.7	175.5	10.2	6
Pickens	209.5	272.1	416.6	207.1	99	81.8	141.7	250.1	168.3	206	127.7	130.4	166.5	38.8	30
Sumter	314.0	390.6	451.0	137.0	44	188.1	259.2	240.6	52.5	28	125.9	131.4	210.4	84.5	67
Tuscaloosa	379.6	503.5	707.0	327.4	86	133.7	240.4	362.1	228.4	171	245.9	263.1	344.9	99.0	40
Six Counties	1,567.5	1,897.8	2,588.4	1,020.9	65	652.6	1,018.4	1,399.5	746.9	114	914.9	879.4	1,188.9	274.0	30
Alabama	11,712.4	14,447.9	20,211.7	8,499.3	73	5,616.1	7,673.1	11,282.6	5,666.5	101	6,096.3	6,774.8	8,929.1	2,832.8	46

Sources: U. S. Forest Service, Southern Forest Experiment Station, Timber Volume by Counties, 1953; Alabama Forests, 1963; Forest Statistics for Alabama Counties, 1972.

Table 12

SAWTIMBER VOLUME ON COMMERCIAL FOREST LAND BY SPECIES GROUP, 1972
(in millions of board feet)

County	All Species	Softwood			Hardwood			
		Total	Pine	Other	Total	Oak	Gum	Other
Greene	1,073,8	552.0	509.0	43.0	521.8	151.0	213.3	157.5
Hale	1,085.5	794.4	794.4	-	291.1	164.7	65.8	60.6
Marengo	1,475.5	939.8	910.8	29.0	535.7	243.3	101.9	190.5
Pickens	1,219.5	821.4	818.2	3.2	398.1	196.6	123.5	78.0
Sumter	1,837.5	1,224.4	1,216.9	7.5	613.1	319.9	120.3	172.9
Tuscaloosa	2,030.5	1,194.5	1,189.1	5.4	836.0	453.5	213.6	168.9
Six Counties	8,722.3	5,526.5	5,438.4	88.1	3,195.8	1,529.0	838.4	828.4
Alabama	63,517.1	42,283.4	41,575.2	708.2	21,233.7	10,190.4	4,806.6	6,236.7

Source: U. S. Forest Service, Southern Forest Experiment Station, Forest Statistics for Alabama Counties, 1972.

Table 13

COMPARISON OF SAWTIMBER VOLUME BY COUNTY AND BY SOFTWOOD AND HARDWOOD IN ALABAMA, 1952, 1962, AND 1972
(in millions of board feet)

County	All Species					Softwood					Hardwood				
	Volume			1952-72 Change		Volume			1952-72 Change		Volume			1952-72 Change	
	1952	1962	1972	Net	%	1952	1962	1972	Net	%	1952	1962	1972	Net	%
Greene	627.9	751.8	1,073.8	445.9	71	214.8	348.0	552.0	337.2	157	413.1	403.8	521.8	108.7	26
Hale	681.2	694.8	1,085.5	404.3	59	256.5	459.2	794.4	537.9	210	424.7	235.6	291.1	-133.6	-31
Marengo	1,042.5	1,122.7	1,475.5	433.0	41	558.3	613.6	939.8	381.5	68	484.2	509.1	535.7	51.5	11
Pickens	501.2	862.3	1,219.5	718.3	143	224.8	466.9	821.4	596.6	26	276.4	395.4	398.1	121.7	44
Sumter	1,278.7	1,723.8	1,837.5	558.8	44	943.8	1,350.8	1,224.4	280.6	30	334.9	373.0	613.1	278.2	83
Tuscaloosa	1,027.5	1,441.0	2,030.5	1,003.0	98	419.8	828.6	1,194.5	774.7	184	607.7	612.4	836.0	228.3	38
Six Counties	5,159.0	6,596.4	8,722.3	3,563.3	69	2,618.0	4,067.1	5,526.5	2,908.5	111	2,541.0	2,529.3	3,195.8	654.8	26
Alabama	38,210.6	46,601.9	63,517.1	25,306.5	66	21,928.9	28,306.7	42,283.4	20,354.5	93	16,281.7	18,295.2	21,233.7	4,952.0	30

Sources: U. S. Forest Service, Southern Forest Experiment Station, Timber Volume by Counties in Alabama, 1953; Alabama Forests, 1963; Forest Statistics for Alabama Counties, 1972.

Table 14

SAWTIMBER VOLUME ON COMMERCIAL FOREST LAND BY SPECIES GROUP AND DIAMETER CLASS, 1972
(in millions of board feet)

County	All Species	Softwood			Hardwood		
		Total	9.0-14.9 Inches	15.0 Inches and up	Total	11.0-14.9 Inches	15.0 Inches and up
Greene	1,073.8	552.0	322.1	229.9	521.8	159.0	362.8
Hale	1,085.5	794.4	418.0	376.4	291.1	127.1	164.0
Marengo	1,475.5	939.8	603.4	336.4	535.7	189.6	346.1
Pickens	1,219.5	821.4	585.3	236.1	398.1	221.6	176.5
Sumter	1,837.5	1,224.4	666.7	557.7	613.1	249.1	364.0
Tuscaloosa	2,030.5	1,194.5	775.9	418.6	836.0	408.2	427.8
Six Counties	8,722.3	5,526.5	3,371.4	2,155.1	3,195.8	1,354.6	1,841.2
Alabama	63,517.1	42,283.4	27,636.8	14,646.6	21,233.7	10,291.0	10,942.8

Source: U. S. Forest Service, Southern Forest Experiment Station, Forest Statistics for Alabama Counties, 1972.

Page intentionally left blank

OUTLOOK FOR AND PROJECTIONS OF TIMBER RESOURCES IN THE SIX-COUNTY AREA

Basic Assumptions

This chapter presents estimates of timber inventories in the next 20 years for the six-county area, based on projections of growth, removal, base volume, productivity, and planting of seedlings. These projections are bold attempts because of limited knowledge of many factors which will affect these projections. For example, trends in the volume of commercial timberland area, timber management practices, and future prices of forest products all are closely related to future growth, removal, and standing volume. Even though many of these factors cannot be foreseen, some basic assumptions must be made, as follows:

Commercial timberland area: It is assumed that the amount of land classified as commercial timberland in the six-county area will remain at the present level, without significant increase or decrease. In the past two decades, the area has had a moderate gain in timberland area. However, it is not expected to have any large increase in the next 20 years because of urban developments and possible expansion of agricultural uses of land.

Timber management: It is expected that timber management in terms of forest fire control, timber stand improvement, and varied assistance to forest owners will be maintained at current levels.

Future prices of forest products: It is assumed that future prices of forest products will be adequate enough to provide incentives for timber owners to sell timber and to manage their timberland.

The projections developed for removal, net growth, and timber inventory in this chapter represent a composite of analytical procedures of the approximate movement of these sectors in a small geographical area. The results are not estimates with the preciseness of many statistical projections. Rather, they represent analysis of the data and the relationship of the given sectors. Projection always is a precarious business. However, it does provide some useful guidance in planning for the future.

Trends in Removal, Net Growth, and Inventories of Growing Stock

Historical trends in removal, net growth, and inventories of growing stock and their projections to 1982 and to 1992 are presented in Table 15 for Greene

County and in Table 16 for the six-county area. The softwood inventory in Greene County has increased by 50% every decade since 1952, but the rate of increase is not expected to continue at that level in the future. The projection is based on a decreasing rate. Both net growth and removals are expected to increase because of the larger standing volume available. The growth-removal relationship would remain at a 10:6 to 10:7 ratio.

Hardwood growing stock in the county has a much slower rate of increase than softwood growing stock. Between 1952 and 1972, the inventory increased only about 27%. The projection assumes a slightly increased rate because 40% of the county's timberland is in bottomland hardwoods. Removals are expected to remain at about 60% to 70% of net growth.

Table 15

TIMBER REMOVALS, NET GROWTH, AND INVENTORIES
OF GROWING STOCK IN GREENE COUNTY, ALABAMA
(in millions of cubic feet)

	Actual			Projected	
	1952	1962	1972	1982	1992
Softwood					
Removals	3.5	2.0	5.4	7.0	8.5
Net Growth	-	-	7.6	9.0	13.3
Inventory	56.7	85.4	128.2	178.0	220.0
Hardwood					
Removals	2.1	3.5	4.1	5.0	6.0
Net Growth	-	-	7.0	7.9	8.7
Inventory	131.4	126.3	166.7	195.0	220.0

Softwood growing stock increased at about the same rate in the six-county area as in Greene County in the past. However, the projection in the area was based on a slightly higher rate than for Greene County. The growth-cut relationship was assumed to remain at about a 10:6 ratio.

Hardwood growing stock in the area increased at about the same rate as in Greene County. However, the projection of inventory is based on a slower rate because of a larger pine planting ratio in the area than in Greene County. The

projection of cut-growth relationship also assumes a slightly higher ratio. Low-grade hardwood is plentiful in the area, expecially on pine sites, and the harvest of hardwood pulpwood can be increased.

It is apparent from these projections that the increased timber resources, in both softwood and hardwood growing stock, could accommodate new wood manufacturing enterprises in Greene County and in the six-county area.

Table 16

TIMBER REMOVALS, NET GROWTH, AND INVENTORIES
OF GROWING STOCK IN THE SIX-COUNTY AREA, ALABAMA
(in millions of cubic feet)

	Actual			Projected	
	1952	1962	1972	1982	1992
Softwood					
Removals	41.2	31.8	57.9	75.0	90.0
Net Growth	-	-	96.5	121.0	150.0
Inventory	652.6	1,018.4	1,399.5	1,760.0	2,174.0
Hardwood					
Removals	31.6	31.9	34.7	38.0	41.0
Net Growth	-	-	52.0	54.0	58.0
Inventory	914.9	879.4	1,188.4	1,286.0	1,465.0

Softwood, mostly southern pines, has gradually prevailed both in Greene County and in the six-county area. In Greene County, softwood growing stock accounted for about 30% of all species in 1952, increased to nearly 44% in 1972, and is expected to rise to 50% by 1992 or earlier. In the six-county area, softwood is already predominant now and is expected to increase to 60% of the total by 1992. (See Table 17.)

Softwood growth is facilitated by timber cutting and planting of seedlings, while hardwood is better adapted to unmanaged timberland where it is dark, dense, and humid. The rate of increase in softwood volume will gradually decline for two reasons. First, there are few clear lands or farms left for pine planting. Second, the recent steep rise in prices of agricultural commodities will encourage people to use more land for farming purposes rather than for

Table 17

SOFTWOOD GROWING STOCK AS A PERCENTAGE OF ALL SPECIES
IN GREENE COUNTY AND IN THE SIX-COUNTY AREA, 1952 TO 1992

Year	Greene County	Six-County Area
1952	30.1	41.6
1962	40.3	53.7
1972	43.5	54.1
1982	47.6	57.8
1992	50.0	59.7

tree planting. This leaves only one course to increase the softwood supply -- to clear-cut hardwood lands and replace them with pine. This is a costly process, and few people are willing to undertake it.

Trends in Removal, Net Growth, and Inventories of Sawtimber

The inventory of softwood sawtimber in Greene County has shown a persistent increase since 1952. The rate of increase amounted to 157%, much higher than the gain in growing stock. The inventory is projected to rise another 69% in the next two decades. The greatly reduced rate of increase is based on two considerations -- a much larger base in 1972 than in 1952 and the already high volume of sawtimber per acre in the county. The removal trend in the county shows irregularities because of the wide fluctuations in the construction and housing markets. The removal-to-growth ratio is expected to remain between 60% and 70%.

Removals of hardwood sawtimber in the county show a persistent increase over the 20 years. The projection for removals is based on a much reduced rate because of the slow increase in hardwood inventory and the high ratio of cut-to-growth in hardwood already. Removals are expected to remain at over 80% of net growth in the future. Details of these projections are presented in Table 18.

In the six-county area, softwood sawtimber inventory increased 110% between 1952 and 1972 and is projected to increase about 56% by 1992. The reasons for the reduced rate of increase in the future are the same as those given for Greene County. Removals in the area also showed an irregular trend because of market

Table 18

TIMBER REMOVALS, NET GROWTH, AND INVENTORIES
OF SAWTIMBER IN GREENE COUNTY, ALABAMA
(in millions of board feet)

	Actual			Projected	
	1952	1962	1972	1982	1992
Softwood					
Removals	15.5	5.8	23.6	35.0	50.0
Net Growth	-	-	39.5	54.0	70.0
Inventory	214.8	348.0	552.0	718.0	933.0
Hardwood					
Removals	9.2	13.0	15.7	17.7	20.0
Net Growth	-	-	18.5	21.0	24.0
Inventory	413.1	403.8	521.8	588.0	658.0

demand. Net growth is projected to remain at about 8% of the inventory, while removals are expected to continue at 60% to 70% of net growth. (See Table 19.)

Table 19

TIMBER REMOVALS, NET GROWTH, AND INVENTORIES
OF SAWTIMBER IN THE SIX-COUNTY AREA, ALABAMA
(in millions of board feet)

	Actual			Projected	
	1952	1962	1972	1982	1992
Softwood					
Removals	171.0	107.3	252.4	350.0	450.0
Net Growth	-	-	416.4	550.0	680.0
Inventory	2,618.0	4,067.1	5,526.5	7,180.0	8,600.0
Hardwood					
Removals	140.0	110.0	119.7	130.0	140.0
Net Growth	-	-	146.4	156.0	162.0
Inventory	2,541.0	2,529.3	3,195.8	3,470.0	3,615.0

Hardwood sawtimber inventory exhibited only a moderate increase of 20% between 1952 and 1972, while the removals actually declined about 15%. The decline was due mainly to the lack of hardwood sawtimber supplies. Removals are expected to remain at over 80% of the net growth in the area. The tight supply of hardwood sawtimber will persist.

Softwood is even more prominent in sawtimber than in growing stock in the area. In Greene County, softwood sawtimber constituted 34.2% of all species in 1952, increased to 51.4% in 1972, and was projected to reach 58.6% by 1992. In the six-county area, softwood sawtimber was 50.7% of the total in 1952, increased to 63.4% in 1972, and was projected to attain 70.4% by 1992. Details of these percentages are given in Table 20.

Table 20

SOFTWOOD SAWTIMBER AS A PERCENTAGE OF ALL SPECIES IN GREENE COUNTY AND IN THE SIX-COUNTY AREA, 1952 TO 1992

Year	Greene County	Six-County Area
1952	34.2	50.7
1962	46.3	61.7
1972	51.4	63.4
1982	55.0	67.4
1992	58.6	70.4

Productivity Trends

Timberland productivity can be measured by per-acre net growth and per-acre inventory volume, which are related to some extent. Current net growth averages for the South and Alabama are known, with the per-acre net growth of growing stock amounting to 45 cubic feet in the South, compared with 56 cubic feet in Alabama. Both Greene County and the six-county area have 62 cubic feet of net growth per acre. If the commercial timber acreage in Greene County remains at the present level, net growth of growing stock can be projected at 72 cubic feet per acre by 1982 and 94 cubic feet by 1992. In the six-county area, based on a similar assumption, net growth is projected at 73 cubic feet by 1982 and 87 cubic feet by 1992. The South as a whole will have only a moderate increase in net growth -- from 45 cubic feet in 1970 to 50 cubic feet by 2000, according to a U. S. Forest Service projection. (See Table 21.)

Table 21

COMPARISON OF PER-ACRE NET GROWTH, 1972 TO 1992
(in cubic feet)

Area	1972	1982	1992
Greene County	62	72	94
Six-County Area	62	73	87
Alabama	56	-	-
South	45[a/]	-	50[b/]

a/ Based on 1970 figure.

b/ Based on 2000 figure.

In terms of per-acre inventory, another indicator of timber productivity, Greene County has consistently led the six-county area, Alabama, and the South. It is interesting to note that Greene County is superior in timber base to the six-county area as a whole. In turn, the six-county area surpasses Alabama as a whole and Alabama is better than the South.

Greene County currently has 1,257 cubic feet of growing stock per acre, compared with 1,079 cubic feet in the six-county area, 947 cubic feet in Alabama, and 828 cubic feet in the South. Projections indicate that Greene County will experience a 49% increase in growing stock by 1992 and the six-county area will have a 40% increase by that year. (See Table 22.)

Greene County also is superior in sawtimber inventory on a per-acre basis. Currently Greene County has about 4,577 board feet per acre, compared with 3,635 board feet in the six-county area, 2,977 board feet in Alabama, and 2,513 board feet in the South as a whole. Projections indicate a gain of 46% for Greene County and 40% for the six-county area by 1992. (See details in Table 22.)

Seedling Planting Trends

Timber resources in a given area and the productivity of timberland can be improved by seedling planting. In the six-county area, the planting of seedlings has been carried out regularly over the last three to four decades. In recent years, over 10 million seedlings have been planted in the area annually, aside from natural reforestation. Seedlings have been planted on converted farmland or on hardwood stands after cutting. About 98% to 99% of the seedlings planted

Table 22

COMPARISON OF TIMBER INVENTORY ON A PER-ACRE BASIS, 1952 TO 1992

Area	1952	1962	1972	1982	1992
	Growing Stock (in cubic feet)				
Greene County	744	806	1,257	1,590	1,875
The Six-County Area	677	796	1,079	1,269	1,516
Alabama	564	665	947	-	-
South	-	-	828	-	-
	Sawtimber (in board feet)				
Greene County	2,485	2,861	4,577	5,544	6,782
The Six-County Area	2,230	2,731	3,635	4,437	5,090
Alabama	1,841	2,143	2,977	-	-
South	-	-	2,513	-	-

were pines. Loblolly pine alone constituted between 50% to 70% of the seedlings planted each year. Hardwood species such as yellow poplar, red cedar, cypress, black walnut, spruce, and sweet gum constituted only 1% to 2%. The volume of seedlings planted in Greene County has been smaller in proportion to its timber area than in the six-county area as a whole. The reason is that a large bottomland forest exists in the county which is good for hardwood but not suitable for pines. Data on seedling planting in Greene County, in the six-county area, and in Alabama are given in Table 23.

About 700 seedlings generally are planted per acre (spaced eight feet apart). In 15 years, pulpwood size is reached. The first thinning is carried out then, followed by another thinning every five years. In 40 years, one acre would contain 195 trees of sawtimber size, between 12 and 15 inches in diameter, or about 18,500 board feet per acre. Continuation of seedling planting is a sure way to give the area greater timber resources in the years to come.

Alabama has an impressive seedling planting program, and the six counties' record compares well with that of the state. The number of seedlings planted in the six-county area grew from about 10% of the state's total to nearly 15% over the past two decades (see Table 23). However, large-scale planting of

Table 23

NUMBER OF SEEDLINGS PLANTED IN GREEN COUNTY, THE SIX-COUNTY AREA, AND ALABAMA, 1951 TO 1972

Year	Greene County	Six-County Area	Alabama	Six Counties as a % of Ala.
1951-52	59,000	1,709,572	16,353,056	10.4
1952-53	779,000	4,763,786	39,277,461	12.1
1953-54	588,500	3,565,650	33,980,466	10.5
1954-55	196,500	3,610,495	37,213,449	9.7
1955-56	132,650	2,284,650	49,906,829	4.6
1956-57	256,000	6,026,000	90,365,000	6.7
1957-58	1,377,450	12,130,050	122,327,708	9.9
1958-59	2,048,000	19,944,650	204,390,882	9.8
1959-60	989,050	16,799,550	177,420,694	9.5
1960-61	605,000	12,504,900	114,558,288	10.9
1961-62	198,650	9,677,692	73,635,633	13.1
1962-63	184,000	6,498,500	66,004,193	9.8
1963-64	155,837	5,290,562	58,716,906	9.0
1964-65	29,000	4,374,900	51,740,863	8.5
1965-66	706,500	5,312,900	56,256,523	9.4
1966-67	195,600	8,378,100	64,675,310	12.9
1967-68	706,500	9,057,020	72,406,389	12.5
1968-69	1,069,000	11,196,655	82,393,822	13.6
1969-70	1,843,500	13,424,662	91,374,825	14.7
1970-71	1,217,000	14,148,430	104,903,583	13.5
1971-72	671,000	12,848,244	88,300,521	14.6

Source: Alabama Forestry Commission.

seedlings cannot be carried out forever because of the limitation in land space. When all idle lands are planted, continuation of planting would have to depend on cut-over land. No projection of future planting in the six-county area was attempted; however, it is reasonable to predict that today's large-scale seedling planting in the area will have a positive effect on its future timber supply.

Page intentionally left blank

DEMAND FOR TIMBER PRODUCTS IN THE SIX COUNTY AREA

General Economic Trends

The demand for timber products is a function of general economic activities in a given society. Since economic activities in the six-county area closely follow national economic trends, examination of major economic indicators, such as gross national product, disposable personal income, number of housing starts, population, and index of industrial production, can reveal, to a great extent, the demand for timber products. Although these indicators fluctuate from time to time, nevertheless, they show a clear trend of long-term growth. Both gross national product and disposable personal income have more than doubled since 1950, based on 1967 constant dollars. The number of housing starts has increased over 80% since 1960, while population has grown 37% since 1950. The index of industrial production has increased nearly 120% since 1950. Detailed statistics on these and other indicators are given in Appendix 1.

One of the important determinants of future market levels is population. Recent projections by the Bureau of the Census[1/] show that if the fertility and immigration rates of the late 1960's continue, population in 2000 will be nearly 280 million people -- some 70 million more than in 1972. Growth in population is likely to be accompanied by rising income. If economic activities continue to expand as in recent decades, per capita disposable income will more than double by 2000. Thus, in addition to the demands of another 72 million people, there will be the additional pressure from 280 million people with much larger amounts of money to spend.

Naturally, additional demands will go for housing, furniture, and other goods made in whole or in part from timber products. Recent projections by the Forest Service[2/] indicate a high level of demand for housing -- around 2.5 million units a year -- during the 1970's and a continuation of the upward trend in the 1980's and 1990's. Any downturn in housing demand is likely to be temporary.

1/ Population Estimates and Projections -- Projections of the Population of the United States, by Age and Sex: 1972 to 2020, Current Population Reports, Series P-25, No. 493, 1972.

2/ The Outlook for Timber in the United States, Forest Resource Report No. 20, Washington, D. C., 1973.

Trends in growth of population, economic activity, and disposable personal income also indicate the likelihood of a major increase in the demand for factories, stores, hospitals, sewer and water systems, roads, and other related types of buildings and facilities in the 1970's and beyond. In addition, these growth trends suggest very large increases in demand for paper and other products made from wood pulp, pallets, heavy construction timbers, furniture, and railroad ties. The nation is faced with the prospect of large increases in demand on all of its timber resources -- softwoods and hardwoods.

According to projections made by the Southern Forest Resource Analysis Committee,[1/] timber cut in the South in the year 2000 will be 2.3 times the current cut. This means that the demand for timber products in the South will more than double in the next two to three decades. The greatly increased demands for timber products offer opportunities to expand existing wood-using plants as well as to establish new ones in places which have ample timber resources.

The demands for major timber products in the six-county area and projected trends since 1958 are presented in this chapter. Data are available on pulpwood, lumber, poles and pilings, and railroad crossties. Data on veneer log production are available for only one year -- 1971. As a rule of thumb, 60% to 70% of the roundwood cut in the area goes for pulpwood uses, 20% to 25% for lumber production, and about 10% for miscellaneous products such as poles, pilings, and railroad crossties.

Pulpwood Production and Trends

Statistics on pulpwood harvested in Greene County and in the six-county area since 1958 are given in Table 24. The harvest of round pine for pulpwood purposes shows a wide range of change from one year to another. The long-term trend, however, is an upward movement. In contrast, the harvest of round hardwood for pulpwood in the county shows a persistent increase since 1958 except during the last two years. The harvest of round hardwood is approaching the volume level of the harvest of round pine for pulpwood uses, both in Greene County and the six-county area.

1/ The South's Third Forest, a report by the Southern Forest Resource Analysis Committee, 1969, based on a two-year study cosponsored by the Southern Pine Association, American Plywood Association, Southern Hardwood Lumber Manufacturers Association, and Forest Farmers Association.

Based on data given in Table 24, a least squares trend line was fixed for each production series. (See Figures 1, 2, 3, and 4.) In the case of round pine harvested, the trend lines represent merely a general direction. However, the trend lines for hardwood harvested could represent a projection for the coming years because of the consistent trends in the past. According to the trend line, round pine pulpwood harvested in Greene County may be close to 40,000 cords a year by 1978, a figure nearly attained in 1970 at the peak of the series. Round pine pulpwood harvested in the six-county area may reach 390,000 cords a year by 1978, about 13% more than the peak in the series. Round hardwood pulpwood production in Greene County is expected to reach 40,000 cords a year by 1978, compared with the peak of 27,000 cords in 1970. Round hardwood pulpwood production may reach a little over 350,000 cords a year in the six-county area, compared with the peak of 240,000 cords in 1970. See details in Figures 1 to 4.

Table 24

PULPWOOD HARVESTED IN GREENE COUNTY AND IN THE SIX-COUNTY AREA, 1958 TO 1972
(in thousands of cords)

Year	Round Pine		Round Hardwood	
	Greene County	The Six-County Area	Greene County	The Six-County Area
1958	31	223	2	17
1959	32	224	4	41
1960	22	196	7	86
1961	16	231	8	89
1962	15	211	11	105
1963	20	219	16	113
1964	21	237	18	119
1965	25	282	19	178
1966	36	319	17	193
1967	34	324	20	202
1968	32	325	24	232
1969	38	316	25	236
1970	39	345	27	240
1971	28	290	26	226
1972	28	290	25	210

Source: U. S. Forest Service, Southern Forest Experiment Station, Southern Pulpwood Production, 1958 to 1972.

FIGURE 1
ROUND PINE PULPWOOD HARVESTED IN GREENE COUNTY, ALABAMA,
1958 TO 1972, AND A LEAST–SQUARES TREND LINE

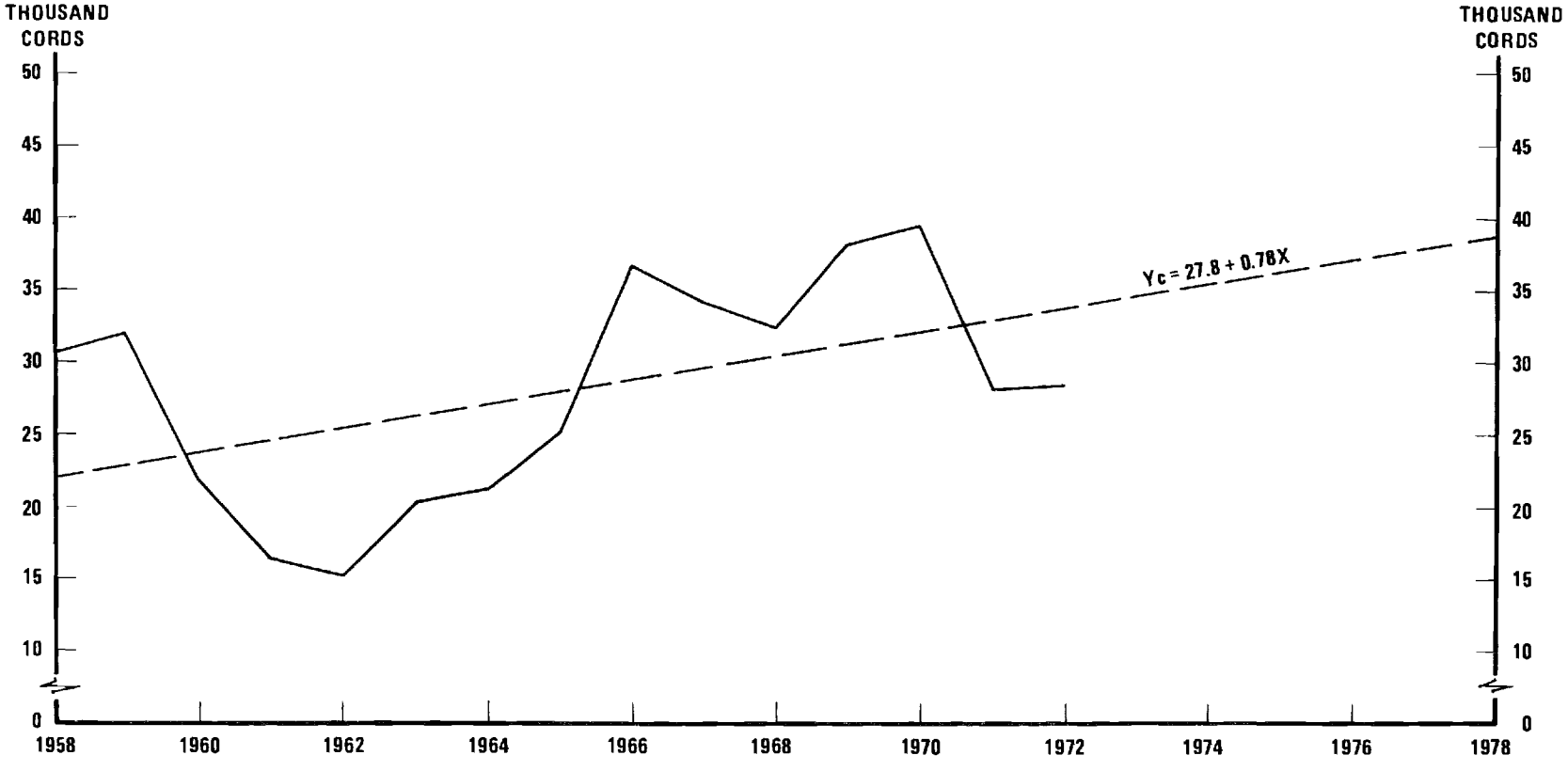


FIGURE 2
RDUND PINE PULPWDDD HARVESTED IN THE SIX-CDUNTY AREA, ALABAMA,
1958 TD 1972, AND A LEAST-SQUARES TREND LINE

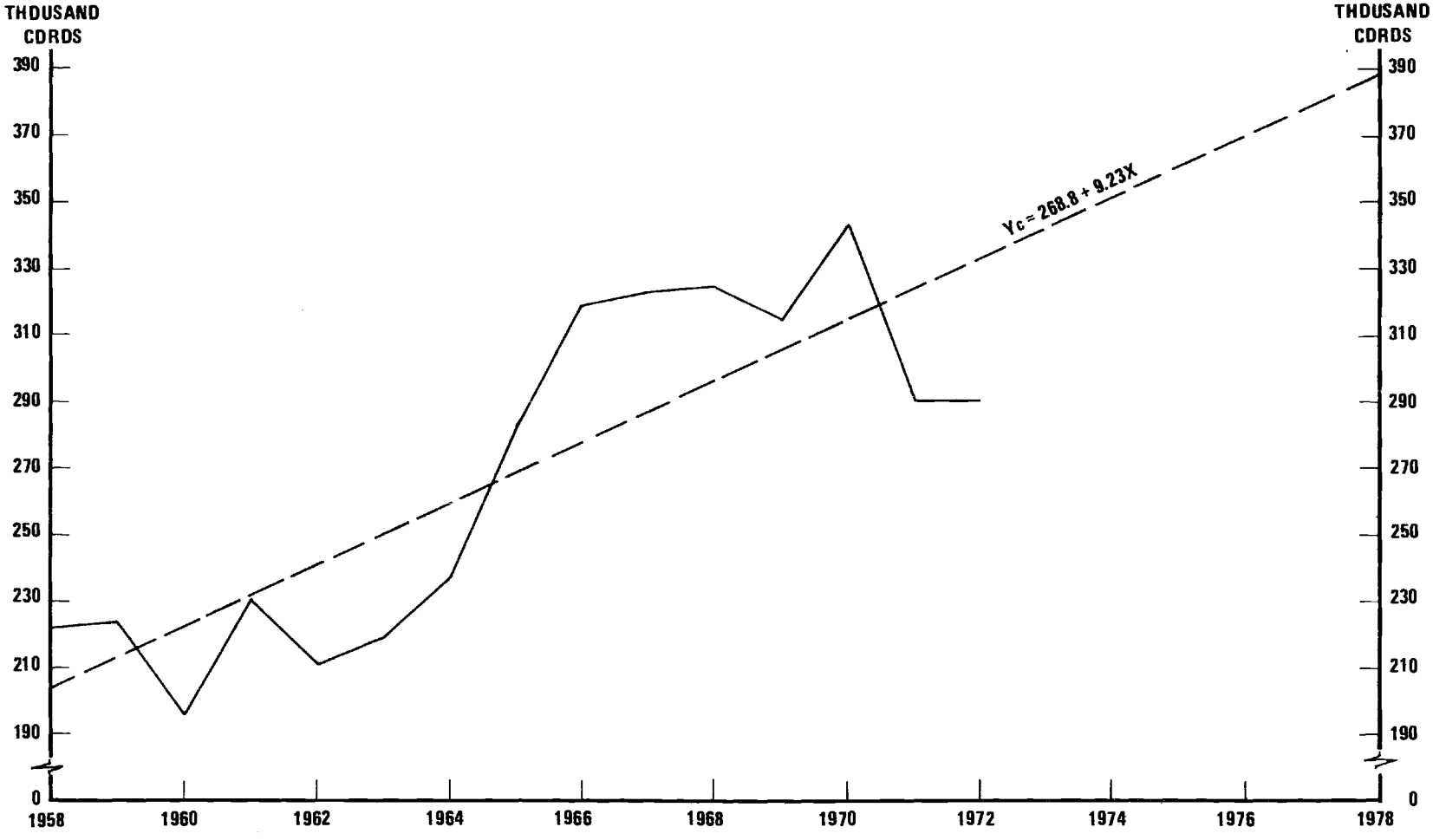


FIGURE 3
ROUND HARDWOOD PULPWOOD HARVESTED IN GREENE COUNTY, ALABAMA,
1958 TO 1972, AND A LEAST-SQUARES TREND LINE

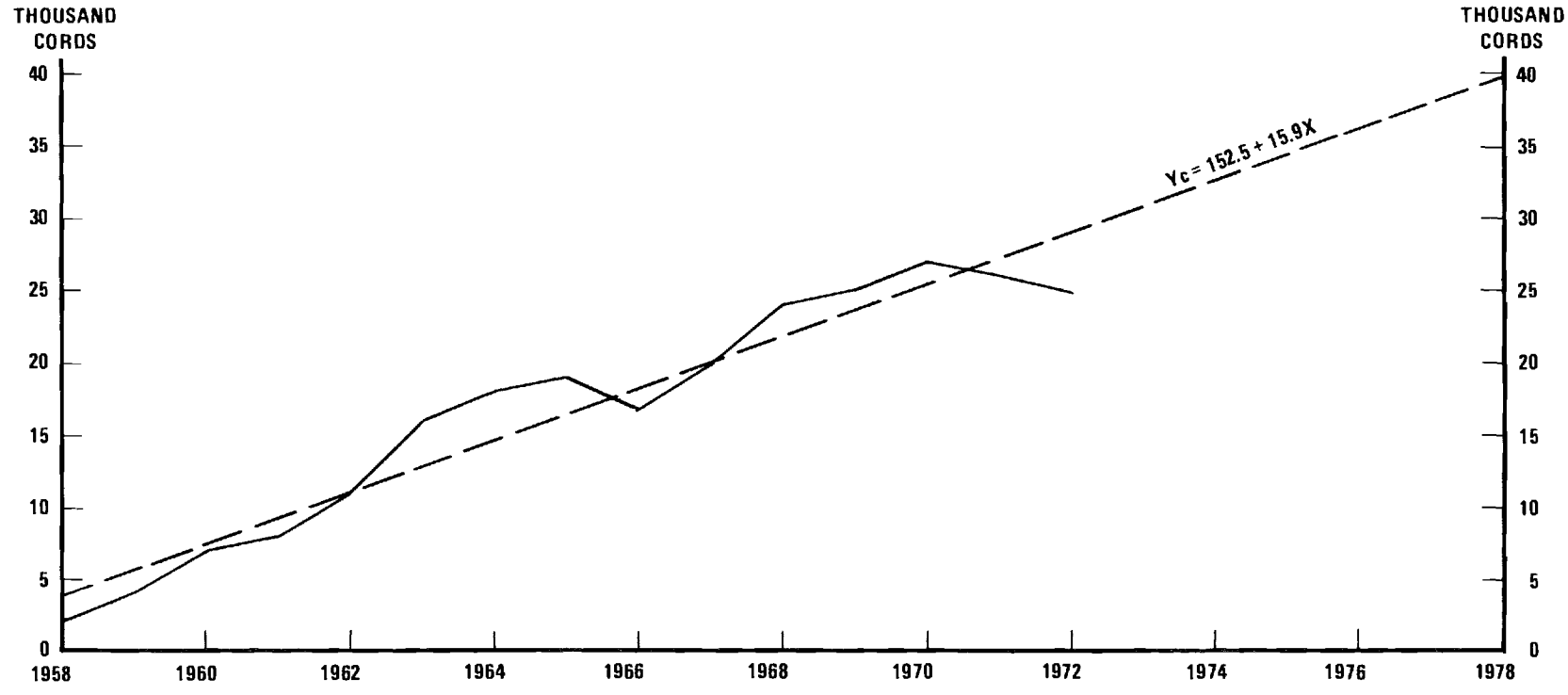
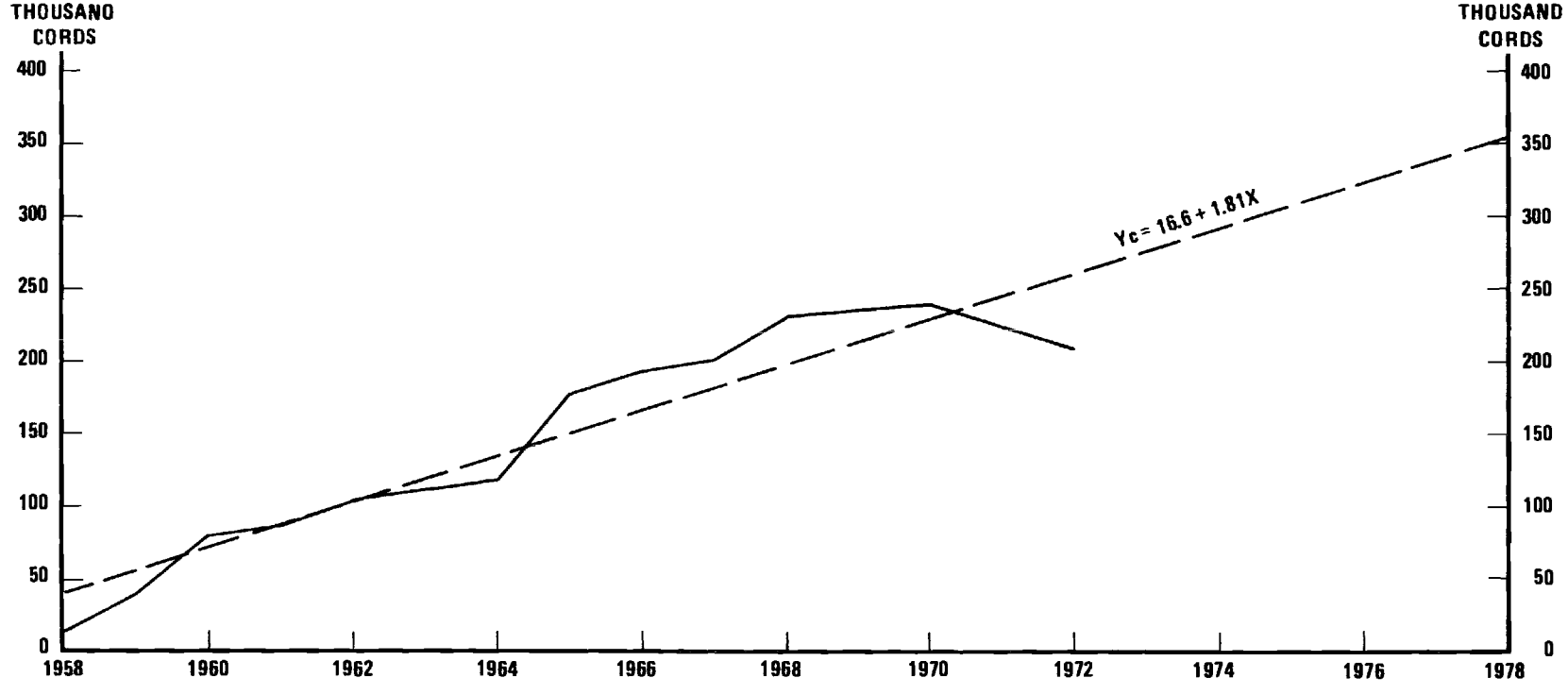


FIGURE 4
ROUND HAROWOOD PULPWOOD HARVESTED IN THE SIX–COUNTY AREA, ALABAMA,
1958 TO 1972, AND A LEAST–SQUARES TREND LINE



Lumber Production and Trends

Lumber production in Greene County has fluctuated widely since 1958. When the production trend is presented by a five-year moving average, however, the trend becomes clear. Pine lumber production in the county shows a persistent upward trend, while hardwood lumber production shows a gradual decline. Following the trend line, pine lumber production in Greene County may reach close to 12 million board feet a year by 1976 to 1980, compared with the peak period of 8.6 million board feet between 1968 and 1972. Hardwood lumber production may decline to 3.3 million board feet by 1976 to 1980, compared with its peak period of 6.3 million board feet between 1959 and 1963. Pine lumber production has exceeded hardwood lumber production in the county since 1967. See details in Table 25 and Figure 5.

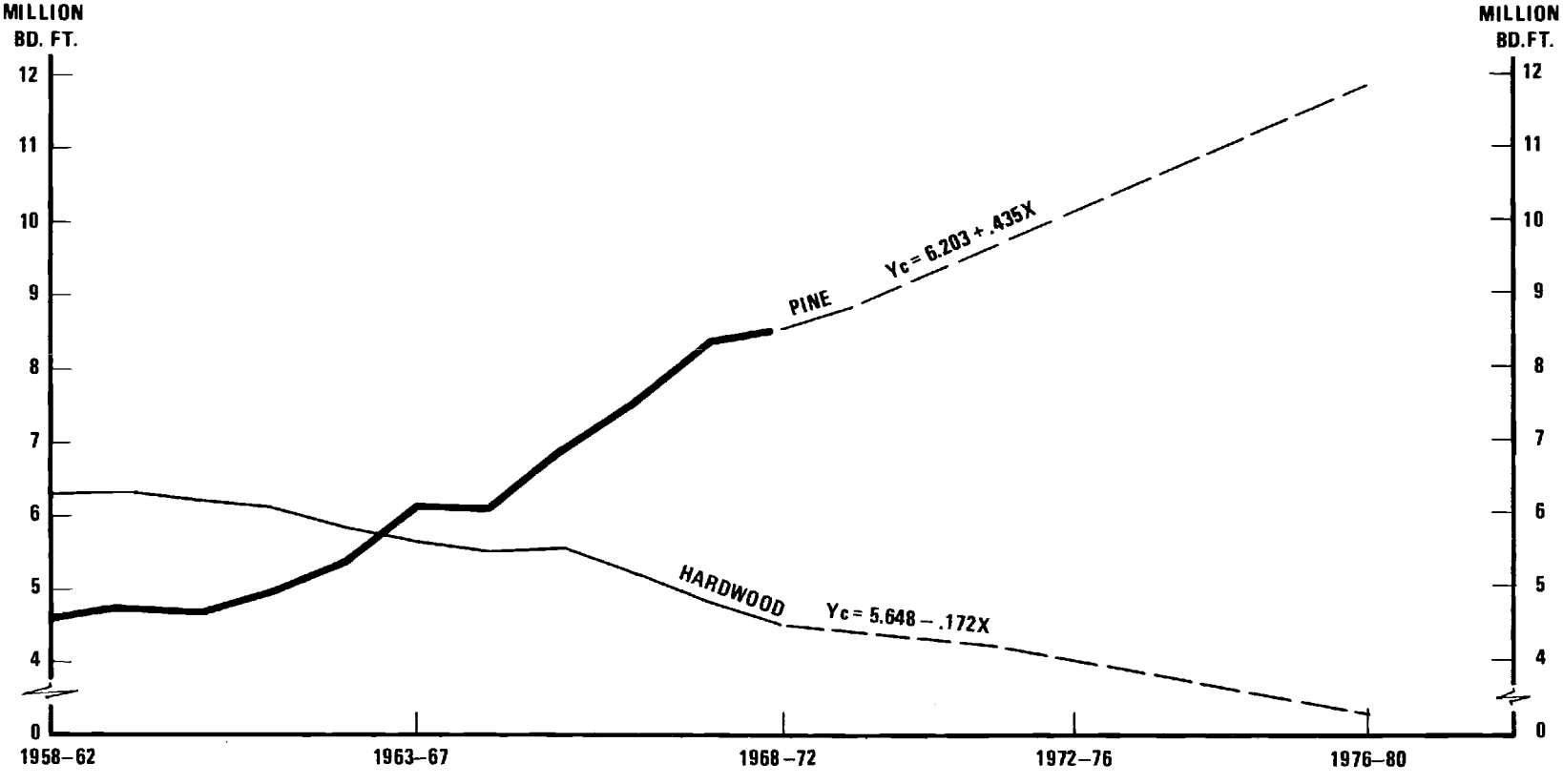
Table 25

PINE AND HARDWOOD LUMBER MANUFACTURED IN GREENE COUNTY, ALABAMA, 1958 TO 1972, AND A FIVE-YEAR MOVING AVERAGE TREND
(in thousands of board feet)

	Pine Lumber		Hardwood Lumber	
Year	Actual	A Five-Year Moving Average	Actual	A Five-Year Moving Average
1958	5,946		5,495	
1959	5,641		7,267	
1960	4,838	4,602	7,052	6,243
1961	1,108	4,783	5,384	6,312
1962	5,480	4,700	6,015	6,208
1963	6,849	4,994	5,844	6,132
1964	5,229	5,382	6,747	5,883
1965	6,304	6,157	6,670	5,670
1966	3,047	6,129	4,136	5,516
1967	9,354	6,902	4,952	5,581
1968	6,711	7,597	5,073	5,215
1969	9,095	8,417	7,074	4,819
1970	9,776	8,572	4,840	4,546
1971	7,147		2,155	
1972	10,130		3,586	

Source: Alabama Forestry Commission, Production of Forest Products by Counties in Alabama as Determined from Forest Products Severance Tax Reports, 1958 to 1972.

FIGURE 5
PINE AND HARDWOOD LUMBER MANUFACTURED IN GREENE COUNTY, ALABAMA,
ON A FIVE-YEAR MOVING AVERAGE TREND AND PROJECTION



Lumber production in the six-county area shows a much more persistent trend than in Greene County because the series is a total of six counties. Pine lumber production has exceeded hardwood lumber production in the six-county area from the beginning of the series in 1958. Pine shows a persistent upward trend, while the trend of hardwood lumber production shows a gradual decline. Both trends are represented by five-year moving averages. Pine lumber production in the area may reach 195 million board feet by 1976 to 1980, compared with its peak period of 142 million board feet during the period of 1968 to 1972. Hardwood lumber production may remain at about 50 million board in the 1976-1980 period. Details are given in Table 26 and Figure 6.

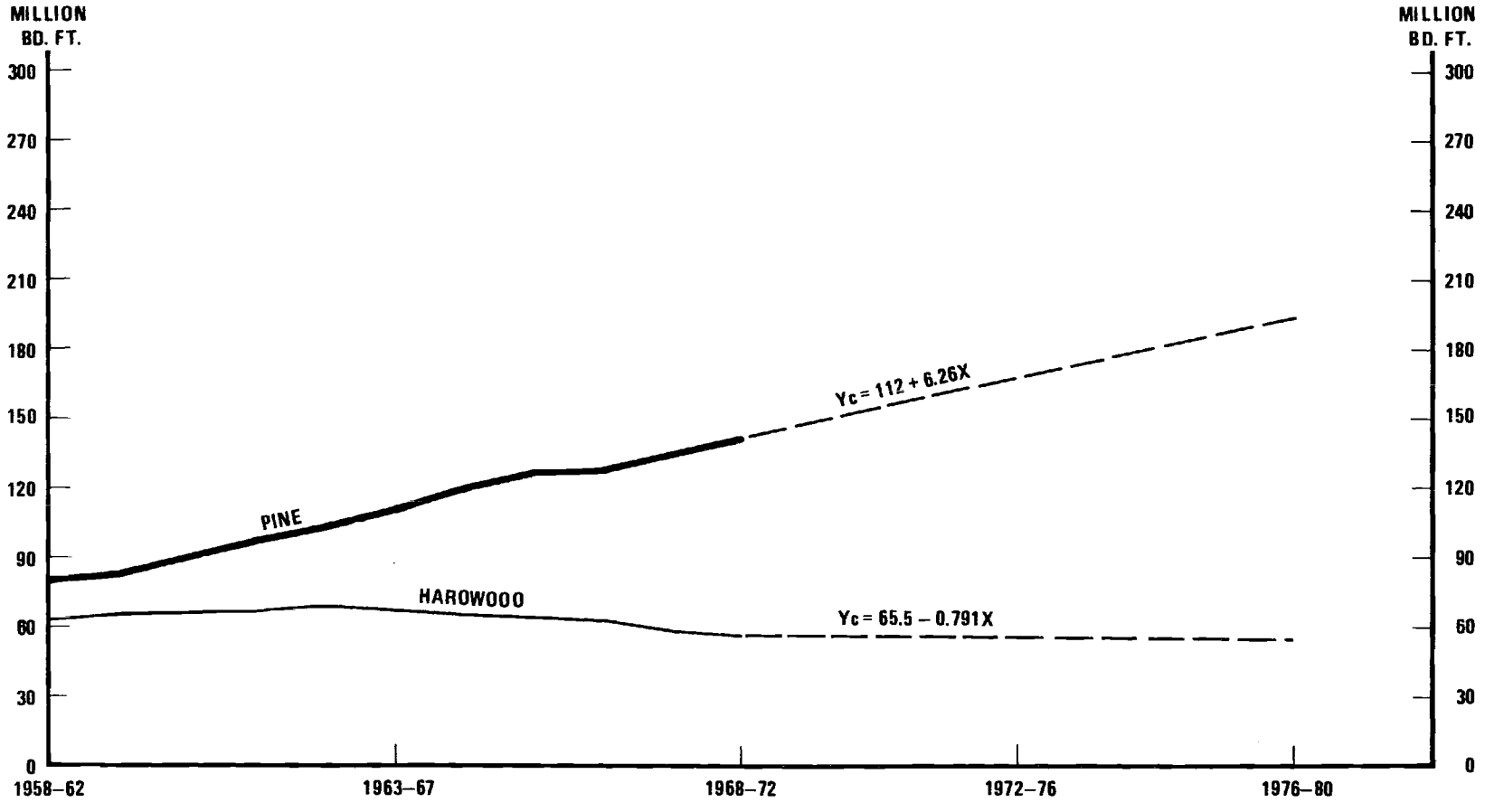
Table 26

PINE AND HARDWOOD LUMBER MANUFACTURED IN THE SIX-COUNTY AREA, ALABAMA, 1958 TO 1972, AND A FIVE-YEAR MOVING AVERAGE TREND
(in thousands of board feet)

	Pine Lumber		Hardwood Lumber	
Year	Actual	A Five-Year Moving Average	Actual	A Five-Year Moving Average
1958	78,726		63,376	
1959	77,065		62,173	
1960	76,999	82,059	69,901	63,543
1961	82,804	85,699	50,413	66,159
1962	94,700	90,634	71,850	66,923
1963	96,927	98,852	76,460	67,201
1964	101,741	105,445	65,989	70,709
1965	118,087	111,117	71,293	68,686
1966	115,769	120,687	67,953	65,103
1967	123,059	127,408	61,737	65,236
1968	144,781	129,860	58,542	63,285
1969	135,342	135,626	66,656	59,755
1970	130,347	141,598	61,537	57,439
1971	144,602		50,301	
1972	152,917		50,159	

Source: Alabama Forestry Commission, Production of Forest Products by Counties in Alabama as Determined from Forest Products Severance Tax Reports, 1958 to 1972.

FIGURE 6
PINE AND HARDWOOD LUMBER MANUFACTURED IN THE SIX–COUNTY AREA, ALABAMA,
ON A FIVE–YEAR MOVING AVERAGE TREND AND PROJECTION



The lumber production trends in both Greene County and the six-county area have confirmed the trends of the timber resources presented in the previous chapter. Pine or softwood timber in the area is expected to increase substantially, while hardwood timber, especially sawtimber, is expected to grow very slowly or not at all.

Crossties Production and Trends

It is well known that the production of railroad crossties follows a 15- to 20-year cycle. Examination of the limited data presented in Table 27 and Figure 7 indicates that the production of hardwood crossties and switch ties

Table 27

NUMBER OF HARDWOOD CROSSTIES AND SWITCH TIES MANUFACTURED IN GREENE COUNTY AND IN THE SIX-COUNTY AREA, 1958 TO 1972, AND A FIVE-YEAR MOVING AVERAGE TREND

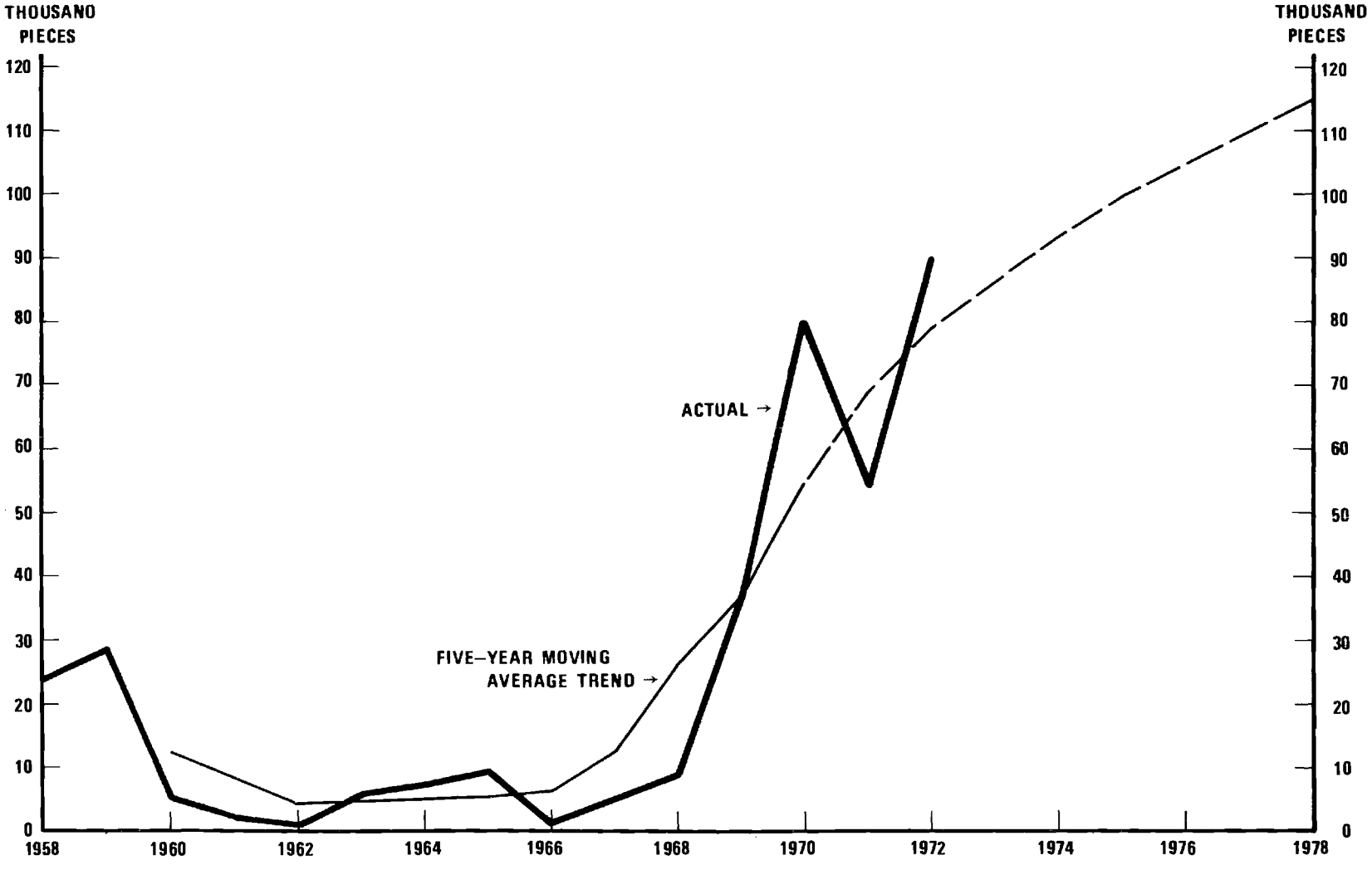
	Greene County		The Six-County Area	
Year	Actual	A Five-Year[a] Moving Average	Actual	A Five-Year Moving Average
1958	186	-	24,659	
1959	-	-	28,981	
1960	-	-	5,096	12,452
1961	-	-	2,429	8,695
1962	75	-	1,094	4,402
1963	-	-	5,874	5,281
1964	-	-	7,516	5,147
1965	-	-	9,494	5,958
1966	404	-	1,757	6,630
1967	96	-	5,148	12,509
1968	-	-	9,233	26,739
1969	-	-	36,913	37,355
1970	378	-	80,644	54,368
1971	5,292	-	54,836	
1972	26,085	-	90,215	

a/ Greene County's data are not sufficient for calculating a five-year moving average.

Source: Alabama Forestry Commission, Production of Forest Products by Counties in Alabama as Determined from Forest Products Severance Tax Reports, 1958 to 1972.

in the six-county area appears to be on a cyclic trend. Although data on Greene County are not sufficient to create a five-year moving average trend, the trend of the six-county area's production shows a strong upward movement, especially in the last few years. Both Greene County and the six-county area produced an

FIGURE 7
HARDWOOD CROSSTIES MANUFACTURED IN THE SIX–COUNTY AREA, ALABAMA,
AND A FIVE–YEAR MOVING AVERAGE TREND WITH FREEHAND PROJECTION, 1958 TO 1978



unprecedented number of crossties in 1972. This reflects the large increase in railroad activities in the last year or so because of the energy crisis in the nation. It has been forecasted that the energy crisis will continue for a long time; thus, additional railroad service will be needed in the years to come. It is reported that railroad companies have increased their capital outlays for long-neglected repair work on roadbeds and other facilities. Consequently, it is likely that the boom in crossties production will be prolonged.

The number of crossties and switch ties produced in the six-county area was 90,215 in 1972. According to a freehand projected trend based on a five-year moving average, production may reach 115,000 in 1978, an increase of nearly 30% over the peak in 1972. (See Figure 7.)

Poles and Pilings Production

Data on pine poles and pilings harvested in Greene County and in the six-county area are presented in Table 28. Utility poles constitute the bulk of

Table 28

NUMBER OF PINE POLES AND PILINGS HARVESTED IN GREENE COUNTY AND IN THE SIX-COUNTY AREA, 1958 TO 1972

Year	Greene County	The Six-County Area
1958	70	19,249
1959	1,933	8,028
1960	-	8,726
1961	-	28,491
1962	-	49,012
1963	730	31,143
1964	-	45,930
1965	-	36,307
1966	-	16,232
1967	146	31,725
1968	376	12,999
1969	-	26,989
1970	2,237	35,595
1971	512	32,266
1972	3,788	30,845

Source: Alabama Forestry Commission, Production of Forest Products by Counties in Alabama as Determined from Forest Products Severance Tax Reports, 1958 to 1972.

the production; construction poles and pilings are minor components in the statistics. Poles are selected straight pine timber of sound quality and of the

right size either for utility outlets or for construction purposes. They command premium prices. The production of poles and pilings in Greene County and in the six-county area does not show any consistent trend or even upward or downward movement. Production has fluctuated from year to year, depending upon the amount of straight and sound timber that can be screened in the process of cutting for pulpwood or sawtimber. Therefore, no attempt is made here to fix a trend for the poles and pilings production in the area.

Veneer Logs Production

Production of veneer logs by counties is given in Table 29 for 1971 only. Greene County is a major producer in the six-county area of both softwood and hardwood veneer logs. No other county in the area is important in both softwood and hardwood supplies. Overall, the county produced about one-fourth of the veneer log supplies in the area in 1971. This also confirms the abundance of larger-size sawtimber in Greene County which was indicated in the previous chapter.

Table 29

VENEER LOG PRODUCTION IN THE SIX-COUNTY AREA, 1971
(in thousands of board feet[a/])

County	All Species	Softwood	Hardwood
Greene	8,770	4,043	4,727
Hale	2,789	1,085	1,704
Marengo	4,961	4,011	950
Pickens	7,154	752	6,402
Sumter	5,435	5,410	25
Tuscaloosa	2,898	2,007	891
Six Counties	32,007	17,308	14,699
Alabama	278,050	221,031	57,019

a/ International 1/4-inch rule.

Source: U. S. Forest Service, Southern Forest Experiment Station, Alabama Forest Industries, 1972.

Page intentionally left blank

SUPPLIES OF TIMBER AND WOOD PRODUCTS IN THE SIX-COUNTY AREA

A Survey of Loggers and Woodworking Plants

The six-county area has a strong timber base relative to existing wood-using plants in the area. This is evidenced by the favorable growth-removal statistics given in a previous chapter. A strong timber base does not guarantee a good supply of timber or wood products in the area, however. Supplies of timber or logs depend upon the stumpage price which an individual firm is willing to pay, the adequacy of logging organization and facilities, road conditions, timber ownership, the tax burden on timber owners, and many other factors which could affect timber sales one way or another. In order to ascertain the supply conditions of timber and wood products in the area, a survey of existing woodworking plants and loggers was conducted between October and November 1973. Two main objectives of the survey are listed below:

1. To learn firsthand from existing woodworking plants and loggers in the area facts concerning the supply conditions of wood raw materials.
2. To obtain a general knowledge of the market outlook for wood products manufactured in the area.

There are 61 woodworking plants in the six-county area, not including two pulp and paper plants (one in Marengo County and one in Tuscaloosa County). Of the 61 plants, only four are located in Greene County. These plants fall into the following classifications: large sawmill, small sawmill, veneer and plywood plant, poles and pilings plant, and specialty product plant. There are 21 large sawmills in the area, only one of which is in Greene County; of 14 small sawmills in the area, none is in Greene County; of five veneer and plywood plants in the area, one is in Greene County; there are three poles and pilings plants in the area, with none in Greene County; and of 18 specialty product plants in the area, two are in Greene County. Large sawmills refer to those cutting in excess of 3 million board feet annually. Those cutting below 3 million board feet a year are classified as small sawmills. Specialty product plants in the area are the manufacturers of pallets, crossties, boxes, hardwood dimension stock, millwork, and molded paper plugs. The distribution of these plants is shown in Table 30. On the whole, Greene County is a net exporter of timber and logs rather than a center of wood products manufacturing.

Table 30

NUMBER OF WOODWORKING PLANTS IN THE SIX-COUNTY AREA[a/]

Type	Greene	Hale	Marengo	Pickens	Sumter	Tuscaloosa	Total
Large sawmill	1	-	3	7	3	8	21
Small sawmill	-	2	3	2	1	6	14
Veneer and plywood	1	-	1	1	1	1	5
Poles and pilings	-	-	1	-	1	1	3
Specialty products	2	1	1	-	4	9	18
Total	4	3	9	10	10	25	61

a/ A list of names, addresses, and products made by these plants is given in Appendix 2.

In order to reach as many of these plants as possible, a mail survey was conducted and followed up with interviews. Forty plants, or 66% of the total, responded to the questionnaires -- 32 by mail and eight through interviews. (See Appendix 4.) The distribution of these responding plants is given in Table 31.

Table 31

NUMBER OF SURVEY RESPONDENTS IN THE SIX-COUNTY AREA

Type	Greene	Hale	Marengo	Pickens	Sumter	Tuscaloosa	Total
Large sawmill	1	-	3	6	2	4	16
Small sawmill	-	1	2	2	-	1	6
Veneer and plywood	1	-	1	-	1	1	4
Poles and pilings	-	-	1	-	1	1	3
Specialty products	2	-	1	-	1	7	11
Total	4	1	8	8	5	14	40

Aside from the survey of woodworking plants, attempts were made to reach loggers in the area (both contract and independent loggers). No list of loggers was extant, and after much effort, only 28 names were obtained. (See Appendix 3.) The difficulty in reaching these loggers can be attributed to two circumstances. There is no organization for loggers, on either the county level or the state level, and loggers move in and out of the logging business quite

freely. Of the 28 names secured, 15 completed the survey questionnaire (Appendix 4). The purpose of surveying loggers in the area was to obtain firsthand information concerning timber supply conditions and the working conditions of these loggers.

Supply Conditions of Wood Raw Materials

Three main areas of concern in regard to supplies of wood raw materials are timber and logs, lumber and board, and wood residues. Timber and logs are required in the primary wood-using industries, such as pulp and paper, lumber, veneer and plywood, and poles and pilings. Lumber and board products are the raw material inputs of secondary woodworking plants, such as pallets, crossties, millwork, furniture dimension stock, boxes and crates, and prefabs. Wood residues can be used in the manufacture of particleboard, charcoal and charcoal briquettes, wood chips, pres-to-logs, and many other items.

Timber and Log Supplies. In theory, all timber in an area will be available for sale if prices are right. In the complex supply and demand relationship, supply may become a problem in time. Opinions expressed by loggers and primary wood-using plants reveal a great deal about the supply conditions of timber and logs in the area.

Type of Operation	Raw Materials Purchased	Supply Outlook	Problem Anticipated
Large sawmill	Pine and softwood logs	Good	Higher prices
Large sawmill	Softwood logs	Fair	-
Large sawmill	Softwood logs	Fair	No problem within 10 years
Large sawmill	Softwood logs	Good	High prices
Large sawmill	Softwood logs	All right	Not too tight
Large sawmill	Softwood logs	Good	Not in near future
Large sawmill	Softwood and hardwood logs	Good	-
Large sawmill	Softwood and hardwood logs	Tight	May have problem
Large sawmill	Softwood and hardwood logs	Good	Will get tight
Large sawmill	Softwood and hardwood logs	Poor	Price too high
Large sawmill	Hardwood logs	Critically short	-

(continued)

Type of Operation	Raw Materials Purchased	Supply Outlook	Problem Anticipated
Large sawmill	Hardwood logs	Fair	-
Large sawmill	Mostly hardwood	Adequate	Less hardwood
Large sawmill	Hardwood logs	Fair	-
Small sawmill	Pine and hardwood logs	All right	None
Small sawmill	Pine logs	Poor	-
Small sawmill	Softwood and hardwood logs	Uncertain	-

Most sawmills purchase their saw logs from contract loggers or from independent loggers, while a few do their own logging. Timber and log supplies appear no problem to sawmills in the area, especially in the case of pine logs. Some hardwood sawmills do experience tight supplies of hardwood saw logs. Pine saw logs sold at $80 to $90 per thousand board feet and hardwood saw logs sold at $55 to $70 per thousand board feet in the area in December 1973.

Type of Operation	Raw Materials Purchased	Supply Outlook	Problem Anticipated
Hardwood veneer	Hardwood veneer logs	Fair	Hardwood diminishing
Hardwood veneer	Hardwood veneer logs	Poor	Not enough logs
Hardwood veneer	Hardwood veneer logs	Short	-
Pine plywood	Pine veneer logs	Not critical	Trees being drained

The supplies of hardwood veneer logs appear to be short to fair, while the supplies of pine veneer logs seem to be adequate in the area. This confirms again that the softwood sawtimber situation is better than that for hardwood sawtimber in the area.

Type of Operation	Raw Materials Purchased	Supply Outlook	Problem Anticipated
Poles and pilings	Pine timber	No shortage	10 years may have
Poles and pilings	Pine timber	Fair	Fence posts in short supply
Poles and pilings	Pine timber	Short supply	-

The timber supplies for poles appear to be in fair condition, although one company did state that its supplies were short. Pole timber is selected from pulpwood or sawtimber for its straight and sound quality. The supply has been irregular, depending upon screening and selection. In contrast, fence posts require only short, small-size, and low-quality timber, which is plentiful in

the area. The supply problem is a matter of economics rather than the availability of wood in the area.

Since all supplies of timber have to be procured by logging operations, opinions expressed by loggers in the area should provide insights into the nature of the supply problem.

Type of Operation	Type of Wood Cut	Problems in Log Supply
Logger	Mostly softwood sawlogs	See no log supply problem. Timber in this area is growing faster than it is being harvested, and the grade is steadily improving.
Logger	Mostly softwood sawlogs	Does not see any problem in the next five years, but states that timber is being cut faster than it is growing.
Logger	Mostly softwood sawlogs	In general a good foresty program is being followed, although timber is being cut too thin in some areas.
Logger	Mostly softwood sawlogs	His main problem is a lack of qualified loggers who will work for him.
Logger	Mostly softwood sawlogs	The rate of supply depends upon stumpage prices.
Logger	Softwood sawlogs	Does not expect any problem in the log supply, even with clear-cutting, as long as timber is replanted. He does worry about stumpage prices. There is plenty of #1 timber not being cut; he cuts only #2 and #3.
Logger	Softwood and hardwood sawlogs	Does not expect any future problem with log supply.
Logger	Softwood and hardwood sawlogs	Does not expect any problem in log supply. The trees in his area are growing faster than they can cut.
Logger	Softwood and hardwood sawlogs	Does not see any problem for at least 10 years in the future.
Logger	Mostly hardwood sawlogs	Buyers are smothering the trucks with bids. Really big trees are sold out.
Logger	Mostly hardwood sawlogs	Log size is smaller each year and the distance from woods to mill is longer.
Logger	Mostly hardwood logs	Sees a definite problem in the future because of several pulp mills in the area.
Logger	Pulpwood	No shortage of trees but there may be a shortage of suppliers because of labor, fuel, and parts.
Logger	Pulpwood	People who own land do not want to sell their timber.

Opinions expressed by loggers indicate clearly that the supply of softwood sawlogs is adequate both at present and in the foreseeable future. The supply of hardwood sawlogs may represent problems to some mills. Stumpage prices, labor, fuel, and parts are problem areas to loggers. Loggers are operating between 15 miles and 90 miles, with an average of 40 miles, from their bases. One logger may operate in three to eight counties, depending upon his size and facilities. Average stumpage prices paid by loggers were $60 to $70 per thousand board feet for pine sawtimber and $35 to $50 per thousand board feet for hardwood sawtimber. Logging and delivery costs may run about $20 per thousand board feet within a distance of 40 miles.

Lumber and Board Supplies. Secondary woodworking plants depend almost entirely on hardwood lumber to satisfy their raw material requirements, while pine lumber goes to housing and construction projects. Eleven secondary woodworking plants responded to the survey, and their opinions concerning hardwood lumber supplies are not uniform. The supply conditions range from good to shortage, depending upon the individual company. Those plants which purchase hardwood logs instead of lumber indicate that they have their own sawmills. Firms manufacturing products, such as pallets and crossties, requiring only low-grade hardwood generally have no problem in raw material supply, while those with products, such as millwork and furniture dimension stock, requiring high-grade hardwood lumber do experience difficulties. One plant making molded paper roll plugs and furniture parts requires planer shavings, which are in short supply in the area. Hardwood lumber prices vary greatly, depending upon grade and species. The average price may range from $120 to $250 per thousand board feet.

Type of Operation	Raw Materials Purchased	Supply Outlook	Problem Anticipated
Pallets and boxes	Hardwood lumber	Good but expensive	No
Pallets	Hardwood lumber	Fair	-
Pallets and skids	Hardwood lumber	Short	-
Pallets	Hardwood logs	Not too bad	Clear-cutting will hurt supplies
Crossties	Hardwood logs	Fair	Not sure
Hardwood dimension	Hardwood lumber	Not bad	If willing to pay

(continued)

Type of Operation	Raw Materials Purchased	Supply Outlook	Problem Anticipated
Furniture dimension	Hardwood lumber	Shortage	Short of supplies
Hardwood dimension	Hickory sawlogs	Shortage	Not enough logs to expand production
Handles, skis, turnings, and pallet stock	Hardwood lumber	Inadequate	-
Millwork	Softwood lumber and high-grade hardwood lumber	Hardwood critical	High-grade hardwood will continue to be in short supply
Molded paper roll plugs and furniture parts	Kiln-dried planer shavings	Shortage	Yes

Wood Residues. Wood residues under this survey are classified as solid wood wastes and not-solid wood wastes. Solid wood wastes are slabs, edgings, trims, cull lumber, and other forms except sawdust and shavings. Not-solid wood wastes include sawdust and shavings. Wood wastes from sawmills are generally in green condition, with a moisture content of 60%, while wood wastes from secondary woodworking plants are generally on a dry weight basis and may have a moisture content of 12% to 15%. Green wood wastes are converted into dry weight in this report.

Wood wastes available for sale in the six-county area totaled 27,530 tons a year, of which 7,530 tons were solid wood wastes and 20,000 tons were not-solid wood wastes. These wood wastes were generated by four sawmills and four secondary woodworking plants in the area. Barks were not included in the figure. The results of this survey are quite close to the statistics released by the U. S. Forest Service in 1972. Details are given in Table 32 and Table 33.

Table 32

WOOD RESIDUES AVAILABLE FOR SALE IN THE SIX-COUNTY AREA, 1973
(tons in dry weight)

Type of Mill	Solid Wood Wastes	Not-Solid Wood Wastes	Total
Sawmills	1,690	13,300	14,990
Secondary mills	5,840	6,700	12,540
Total	7,530	20,000	27,530

Table 33

UNUSED PLANT RESIDUES BY ALABAMA COUNTY, 1971
(in thousands of cubic feet)

County	All Species		Softwood		Hardwood	
	Fine	Coarse	Fine	Coarse	Fine	Coarse
Greene	44	15	-	9	44	6
Hale	3	-	2	-	1	-
Marengo	295	2	36	-	259	2
Pickens	841	182	425	82	416	100
Sumter	124	7	-	-	124	7
Tuscaloosa	1,047	218	451	29	596	189
Total	2,354	424	914	120	1,440	304

Source: U. S. Forest Service, Southern Forest Experiment Station, Alabama Forest Industries, 1972.

Converting wood wastes from volume to weight (Table 33) may present a problem because of the variety of wood species and forms of wood wastes. Assuming 20 pounds per cubic foot as conversion factor, the unused plant residues were 55,560,000 pounds, or 27,780 tons, in the area in 1971. This amount would be enough to support a medium-sized wood particleboard plant with annual output of 15 million to 20 million square feet a year on a 3/4-inch thickness basis if all of the residues were suitable for use in its manufacture. Prices of wood residues in the area range from $25 to $28 per unit (5,000 pounds) for wood chips, $4 to $5 per ton for sawdust, and $10 to $16 per ton for shavings.

Market Outlook for Currently Manufactured Wood Products

Nearly all woodworking plants which participated in this study expressed an optimistic outlook concerning their products. It should be borne in mind that their opinions were largely based on the experience of 1972 and 1973 -- the two prosperous years for all wood manufacturing. Both softwood and hardwood lumber were selling strongly because of the increased construction activities and various industrial demands. In the case of hardwood lumber, demand exceeded supply on many species and items because of the lack of supplies. Hardwood veneer, pine utility poles, and high-grade furniture dimensional stock are examples.

The market outlook for secondary wood products is even better than that for primary products. The demand for pallets and crossties has been strong. Pine plywood has expanded its market volume very rapidly. Hardwood dimension stock, boxes and crates, tool handles, skis, turnings, millwork, and molded plugs and furniture parts manufactured in the area all experienced good to excellent market sales.

Sawmills sold their products to wholesalers, lumber yards, contractors or builders, furniture plants, pallet plants, box manufacturers, and the like. The market area was generally east of the Mississippi River; however, one company sold on a worldwide basis. Hardwood veneer plants sold to plywood plants, box plants, brick manufacturers, and furniture plants. Pallet manufacturers sold to governments, pulp and paper plants, steel mills, glass works, to name a few. Hardwood dimension manufacturers sold to furniture plants and cabinet shops. Poles and pilings were sold to treating plants, contractors, or through brokers to governments.

New Woodworking Plants

Establishment of major woodworking plants in the area or neighboring counties could affect the balance of raw material supply in the area. Those making plans to establish new wood manufacturing plants in Greene County should be aware of new developments in the area and adjacent areas. Several recent developments are mentioned below:

1. Weyerhaeuser Company has set up a Chip-N-Saw operation for lumber at Aliceville, Pickens County.

2. Buchanan Lumber Company has purchased Aliceville Veneer and put up a hardwood sawmill at Aliceville, Pickens County.

3. Georgia-Pacific Corporation has installed a Chip-N-Saw operation at Fayette, Fayette County.

4. MacMillan Bloedel Products, Inc., has a wood manufacturing complex at Pine Hill, Wilcox County, producing wood pulp, lumber, and wood particleboard.

5. Weyerhaeuser Company is building a pine plywood plant at Millport, Lamar County, in addition to its sawmill operation there.

6. Olinkraft, Inc., has set up a wood particleboard plant at Monroeville, Monroe County.

7. Scotch Lumber Company has started a lumber operation at Monroeville, Monroe County.

8. Gulf States Paper Corporation is considering putting up a sawmill operation in Tuscaloosa County.

Aside from the above new developments, existing large wood-using industries, several at some distance from the six-county area, also draw timber from the area. These large corporation or wood manufacturing complexes are large pulp mills and woodworking plants from the Mobile area, Union Camp Corporation at Prattville (Autauga County), Gulf States Paper Corporation at Demopolis (Marengo County) and at Tuscaloosa (Tuscaloosa County), Kimberly-Clark Corporation at Coosa Pines (Talladega County), a wood manufacturing complex in the Philadelphia area of Mississippi, and Masonite Corporation at Laurel, Mississippi.

POTENTIAL WOOD MANUFACTURING INDUSTRIES FOR GREENE COUNTY

Product Screening and Selection Criteria

The preceding four chapters gave an in-depth analysis of the timber resources in the six-county area and a broad review of the demand for and the supply of timber products in the area. The final chapter will be devoted to the search for potential wood manufacturing enterprises suitable for establishment in Greene County, Alabama. This search poses some difficulties. In a general study of this type, it is impossible to take into consideration such uncertain factors as the entrepreneurial experience of the principals, ownership conditions, type of financing, and the learning capacity of local labor. It must be assumed that these factors will not become serious stumbling blocks in establishing new wood manufacturing industries under this program.

Four major criteria were used in screening the various wood products to be considered as potential manufacturing enterprises suitable for Greene County under this program:

1. The products selected should be consistent with local timber resources and supplies.
2. They should have a growth market.
3. The industries should be labor intensive (preferably).
4. They should represent different levels of capital requirements, management skill, and technical know-how.

One other consideration is that products chosen should be either within the capacity of local management and financing or, if massive outside assistance in both management and financing is required, local initiative should be retained. Industries such as pulp and paper, which would require huge capital investment and complex technical know-how in management, are not included in this program.

The initial list of potential products and industries for Greene County included wooden pallets, precut lumber for houses, processed bark products, pine studs, pine veneer, southern pine plywood, wood particleboard, furniture dimension stock, wood chips, lumber, wood concentration yard, crossties, sporting goods (water skis and baseball bats), and poles. A second screening

narrowed the list to only eight products, grouped into four separate manufacturing enterprises, as follows:

1. A hardwood processing center to produce wooden pallets, crossties, lumber, and wood chips.
2. Pine studs and wood chips.
3. Southern pine plywood.
4. A wood manufacturing complex to produce poles, lumber, wood chips, southern pine plywood, and wood particleboard.

Each group of products or enterprises requires an in-depth feasibility study to ascertain the production mix, raw material requirements, labor requirements, capital and investment requirements, production costs, market potential, pricing, projected profit or loss, and national and regional market trend of each product. In fact, four feasibility studies are required to complete this study program. These studies will be conducted when funds are made available. However, brief descriptions of each product, processing methods, raw material requirements, labor requirements, and market potential are found in the succeeding sections.

A Hardwood Processing Center

A hardwood processing center is proposed to utilize the superior hardwood timber resources in Greene County. The center would produce hardwood lumber, crossties and switch ties, pallets, and wood chips. The output ratio of each product would depend upon log supply conditions, market demand, and product price. If market demand and product price are equally favorable to each product, then only log supply conditions would be considered. Pallet production requires only small sawlogs with a top diameter inside bark (DIB) of 8 inches to 10 inches. Crossties can be produced most economically with a log size range of 12 inches to 20 inches. Lumber production favors sawlog diameters of 20 inches and up.

Based on timber data given for Greene County in the previous chapter, an educated guess of the distribution frequency of hardwood sawlogs is given in Table 34. The hardwood sawlogs available in the county may be concentrated in the diameter range of 16 inches to 24 inches. Based on the distribution of given log diameters, the product output ratio for pallets, crossties, and

Table 34

DISTRIBUTION FREQUENCY OF LOG SIZE AND PRODUCTION OUTPUT RATIO FOR PALLETS, CROSSTIES, AND LUMBER FOR A HARDWOOD PROCESSING CENTER IN GREENE COUNTY, ALABAMA

Log Size Top DIB	Distribution Frequency of Logs (in percent)	Product Output Ratio (in percent)		
		Pallets	Crossties	Lumber
8"	2	90	-	10
10"	4	80	10	10
12"	6	30	50	20
14"	8	15	70	15
16"	10	5	80	15
18"	15	10	70	20
20"	20	10	70	20
22"	15	12	65	23
24"	10	14	60	26
26"	5	16	50	34
28"	3	18	40	42
30"	2	20	30	50

lumber is given in the same table. When small-diameter logs are stressed in log procurement, pallet and crosstie production would be boosted. On the other hand, lumber production would be emphasized if large-diameter logs predominate. A wide range of log sizes can be used in crosstie processing; its production can be interchanged with lumber production, depending upon which product commands the more favorable price. Wood chips production would use only short ends and other types of wood residues which would be leftover materials in the center.

Wooden pallets are low, portable platforms used to facilitate handling, storage, and transportation of materials as a unit. The production of wooden pallets in the United States has more than doubled in the last decade and is experiencing an annual growth rate of 10% to 15%. It is one of the strong and persistent growth items among the various woodworking industries. Pallet producers responding to the Industrial Development Division's survey in the six-county area all indicated a large market demand for pallets.

The demand for crossties has been very strong, as verified by the production statistics given for Greene County and the six-county area in the preceding chapter. Demand is expected to remain heavy in the foreseeable future because of the energy crisis in the nation plus the normal upswing in the crosstie production cycle.

The shortage of high-grade hardwood lumber for furniture, millwork, wall paneling, and similar items in the nation is well known in the woodworking industry. The larger size of hardwood sawtimber available in Greene County means that good-quality sawlogs are there. Combination of lumber production with pallet and crosstie production would be ideal for a proposed hardwood processing center. The demand for hardwood lumber has been strong and stable.

A hardwood processing center with an output of 20,000 board feet per eight-hour day or five million board feet a year would be an efficient unit. The facilities required would be a sawmill, a pony sawmill, debarker and chipper, pallet plant, electrical wiring, waste disposal unit, and forklift trucks. Capital outlay would be $350,000 to $500,000. Direct labor of 30 to 35 persons would be necessary, plus four to five administrative personnel.

A Chip-N-Saw Operation

Another potential industry for Greene County is a Chip-N-Saw operation to produce pine studs and wood chips. This proposal takes into consideration two major trends in timber resources in the six-county area. One is the fact that pine timber has gradually replaced hardwood species in the area. Southern pines, especially loblolly and shortleaf, already are predominant in the six-county area. According to the projections made previously, the pine and softwood inventory in Greene County may reach the volume of the hardwood inventory in the next two decades. A second consideration is based on the fact that large-size logs are difficult to obtain, especially in areas where pulp and paper mills are located. A majority of the pine trees have been harvested at pulpwood size, before reaching sawtimber size. Based on a survey of an Alabama sawmill, the log diameter distribution on a per 100 logs basis is given in Table 35.

The distribution of log diameter is highly concentrated in the range of six inches to 11 inches, accounting for 91.1% on observed frequency and 87% on long-run probability. Granted that the trees are larger in diameter in the six-county area than in Alabama as a whole, most timber harvested in the area still

Table 35

OBSERVED FREQUENCY AND LONG-RUN PROBABILITY
OF LOG DIAMETER DISTRIBUTION, BASED ON AN ALABAMA SAWMILL

Log Diameter	Observed Frequency	Long-Run Probability
6"	10.7	9.4
7"	10.0	16.1
8"	24.5	19.6
9"	18.2	17.7
10"	17.6	14.3
11"	10.1	9.9
12"	1.9	6.5
13"	1.9	3.6
14"	1.0	1.8
15"	2.8	0.9
16"	1.3	0.2
Total	100.0	100.0

Source: James A. Buford, Jr., Analyzing a Lumber Manufacturing Process, Cooperative Extension Service, Auburn University, Alabama, Circular R-3, 1973.

would fall in this range. The Chip-N-Saw unit is designed to process small-diameter logs into studs at high speed with wood chips as by-products. The recovery rate of lumber and wood chips is higher with Chip-N-Saw units than with conventional sawmills. In fact, there is no basis for comparing the two systems because conventional sawmills cannot operate on logs with diameters as small as four and five inches. Several outstanding characteristics of the Chip-N-Saw unit are listed below:

1. Requires less labor to control the entire operation.
2. Processes small logs economically.
3. Produces a higher recovery rate of lumber and wood chips.
4. Eliminates slabs and edgings, and reduces sawdust.
5. Requires less space to operate.
6. Can be engineered to specifications as desired.

At least 13 Chip-N-Saw units are operating in Alabama. Chip-N-Saw units come in several models, and each model has different machines designed for a specific range of speeds and for a specific range of log diameters. For example, Model Mark II has a speed range of 60 to 200 linear feet per minute and is suitable for handling log diameters four inches through 12 inches DIB. Rough estimates of capital outlay and labor requirements are given below:

1. A Chip-N-Saw Mark II model, speed at 100 linear feet per minute or output at 60,000 board feet to 80,000 board feet per eight hours, depending upon log diameter inputs, and with a one-line operation, might cost $1.5 million for equipment. Total investment could reach $2.5 million to cover a deck system, a mill system, kiln and storage facilities, and buildings. Labor requirements would be 22 direct workers plus an administrative staff of four to five.

2. A Chip-N-Saw system with a Mark II model, speed at 160 linear feet per minute or output at 90,000 board feet to 120,000 board feet per eight hours, depending upon in-feed log diameters, and with a two-line operation, may cost $2.5 million for equipment. Total investment may be $4.5 million. Labor requirements would be 30 production workers and four to five administrative personnel.

Pine studs are used in building homes and in construction projects. The demand for pine studs depends entirely on construction activities east of the Mississippi River. The demand for pine lumber was strong in 1972 and in the first half of 1973. Tight credit conditions in the nation have caused the construction industry to slump in recent months; however, the long-term outlook for pine lumber is optimistic. As indicated previously, because of population and income growth, new housing starts in the nation are projected at 2.5 million units annually in the 1970's, compared with 1.65 million units in the 1960's. Any slowdown in construction activities will be temporary.

A Southern Pine Plywood Plant

The technological breakthrough in drying and gluing of southern pine plywood and the development of new equipment for use on small logs permitted two large modern pine plywood plants to be built in the South for the first time in 1962. Today the South has 52 such plants. Production increased from 401,708,000 square feet on a 3/8-inch thickness basis in 1965 to 5,318,848,000

square feet in 1972, a more than twelvefold increase in a seven-year period. It is the fastest growing segment of the woodworking industry in the nation.

The phenomenal growth of southern pine plywood can be traced to a single reason -- freight advantages. The West still produces the bulk of softwood plywood today, while over 70% of the softwood plywood produced is consumed east of the Mississippi River. Softwood plywood is sold on a delivered basis and the market prices are based on West Coast manufacturing costs, plus freight from West Coast mills to marketing areas. As a consequence, mills close to major markets profit greatly by their lower actual shipping costs. Thus, the proximity of southern pine plywood plants to major markets gives them distinct advantages in transportation costs, as well as customer services, over the western plants. A southern pine plywood plant in Greene County, Alabama, would have a freight advantage of $10 to $20 per thousand square feet over West Coast plants in shipping to eastern markets.

In southern pine plywood production, a log diameter as small as eight inches would be acceptable. A log exchange program could be arranged with Chip-N-Saw operators or with pulpmills which require only pulpwood-size timber. A southern pine plywood plant would draw veneer log supplies from a radius of 60 miles or even up to 100 miles, depending upon supply conditions. Given the indications of larger-diameter trees in the six-county area and the trend toward the pine timber volume surpassing hardwoods, a southern pine plywood plant in Greene County should be considered.

Pine plywoods produced in the South are largely sheathing grades used for housing and construction purposes. The demand for southern pine plywood is projected to reach 7.4 billion square feet on a 3/8-inch thickness basis by 1976, or two billion square feet more than the volume produced in 1972. Therefore, 23 new plants with annual output of 90 million square feet each should be added in the South in the next few years in order to meet the projected demand.

An operation producing 90 million square feet per year is considered a medium-sized plant. Log requirements of a plant of this size would be 37.5 million board feet a year. The six-county area has a net gain of 164 million board feet of softwood sawtimber a year (excess of net growth over removals). Theoretically, the area can support operations 4.4 times the size of the proposed plant without diminishing the standing softwood sawtimber volume in the area.

A southern pine plywood plant with annual production of 90 million square feet, 3/8-inch thickness basis, would require equipment costing $3.2 million and total fixed investment might reach $6 million. Direct labor of 180 plus an administrative staff of 12 to 15 would be required.

A Wood Manufacturing Complex

The concept of a wood manufacturing complex involves processing a number of selected wood products together under one management in order to attain maximum utilization of timber resources and to bring the largest possible return on invested capital. Each wood product is selected to contribute to the overall efficiency of the complex and each benefits by its association in the integrated operation. This concept is not new. There are many wood manufacturing complexes producing lumber, particleboard, plywood, pulp and paper, and a whole range of building materials in the western part of the United States. As a result of their highly efficient operation, wood products from the West can be shipped across the continent and sold in the eastern market at competitive prices.

A number of wood manufacturing complexes also have been developed in the eastern part of the United States, such as the Georgia-Pacific Corporation in Crossett and Fordyce, Arkansas; Temple Industries in Diboll and Pineland, Texas; Weyerhaeuser Company in Marshfield, Wisconsin; West Virginia Pulp and Paper Company in Tyrone, Pennsylvania; and MacMillan Bloedel, Inc., in Pine Hill, Alabama. The performance of these complexes attests to their success. Obviously, the trend in the lumber and woodworking industry is toward more efficient plant size and integrated operation.

It is proposed to set up a wood manufacturing complex in Greene County to produce poles, lumber, southern pine plywood, wood particleboard, and wood chips as one of four alternative enterprises mentioned in this chapter. Each component of the complex is briefly described below:

Poles: Utility poles are in short supply and command premium prices. Wood treating plants in the area would buy all pole materials any woodworking plant can offer. Pine logs that are straight and of sound quality would be processed according to required standards and sold to wood preserving and treating plants in the area.

Lumber: It is proposed that the complex would produce 50 million board feet of lumber a year. Softwood lumber would constitute about 30 million board feet and hardwood lumber 20 million board feet. A Chip-N-Saw operation would turn pulpwood-size logs into studs, which then would go through a dry kiln and planer mill. A hardwood sawmill would be required to take advantage of the superior hardwood timber resources in Greene County. Hardwood sawn lumber would be dried and sold to pallet plants, crosstie plants, furniture manufacturers, paneling producers, or millwork operations.

Southern pine plywood: A pine plywood plant in the complex would take in any pine logs of eight inches and up. Logs smaller than eight to nine inches would go to the Chip-N-Saw operation. Production of a minimum of 90 million square feet on a 3/8-inch thickness basis is proposed, depending upon veneer log supply conditions.

Wood particleboard: The inclusion of a wood particleboard plant in the complex was designed to utilize wood wastes generated from lumber and plywood production. Shavings, edgings, trimmings, short ends, and the like can be transferred to the wood particleboard plant and be reduced to proper size and shape for use as raw material for particleboard processing. The volume of wood wastes generated in the complex could support a particleboard production of 20 million square feet on a 3/4-inch thickness basis a year.

Wood particleboard has two major market outlets: (1) housing and construction activities and (2) industrial uses. Wood particleboard has been used widely as floor underlayment in housing construction. It is being used extensively as core material in furniture manufacturing. The board is an engineered product with excellent dimensional stability unparallelled by natural woods. The annual growth rate of wood particleboard production in the United States exceeds 15%.

Wood chips: Wood chips generated by the Chip-N-Saw operation can be sold to several pulp mills in neighboring counties. As a rule, market outlets for wood chips have been strong in the South, especially in areas where pulp mills are located.

These five products are initial items proposed for the complex. When the operation of the complex is well established, new products can be added or existing manufacturing activities can be expanded. Likely new facilities would

be a wood preserving and treating plant for poles, a pallet plant, a railroad crosstie mill, a furniture dimension stock plant, or a prefabricated house plant.

The proposed wood manufacturing complex would require capital outlay in the range of $20 million to $25 million. Direct labor requirements would be 200 to 250, with an administrative staff of 25 to 35.

APPENDICES

Page intentionally left blank

Appendix 1

MEASURES OF ECONOMIC GROWTH, POPULATION, AND PRICES, 1950-1972

Year	Gross national product		Disposable personal income		Expenditures for new construction		Business expenditures for new plant and equipment	Number of housing starts	Mobile homes[2]	Population[3]	Index of industrial production			Wholesale price index—All commodities	Consumer price index—[4] All items
	1967[1] dollars	Current dollars	1967[1] dollars	Current dollars	1967[1] dollars	Current dollars					Total	Furniture and fixtures	Containers		
	Billions	*Billions*	*Billions*	*Billions*	*Billions*	*Billions*	*Billion dollars*	*Thousand units*	*Thousand units*	*Millions*	*1967=100*	*1967=100*	*1967=100*	*1967=100*	*1967=100*
1950	417.8	284.8	285.6	206.9	-----	-----	20.2	-----	-----	152.3	-----	-----	-----	81.8	72.1
1951	450.8	328.4	292.5	226.6	-----	-----	25.5	-----	-----	154.9	-----	-----	-----	91.1	77.8
1952	464.6	345.5	301.2	238.3	-----	-----	26.4	-----	-----	157.6	-----	-----	-----	88.6	79.5
1953	485.4	364.6	315.1	252.6	-----	-----	28.2	-----	-----	160.2	-----	-----	-----	87.4	80.1
1954	478.6	364.8	318.4	257.4	-----	-----	27.2	-----	-----	163.0	51.9	57.0	55.7	87.6	80.5
1955	515.0	398.0	339.4	275.3	-----	-----	29.5	-----	-----	165.9	58.5	66.2	61.1	87.8	80.2
1956	524.5	419.2	353.9	293.2	-----	-----	35.7	-----	-----	168.9	61.1	68.8	62.1	90.7	81.4
1957	532.0	441.1	361.3	308.5	-----	-----	37.9	-----	-----	174.9	61.9	68.8	61.6	93.3	84.3
1958	525.9	447.3	364.7	318.8	61.9	50.2	31.9	-----	-----	172.0	57.9	65.0	62.2	94.6	86.6
1959	559.6	483.7	381.0	337.3	67.4	55.3	33.6	1,554	121	177.8	64.8	72.6	67.9	94.8	87.3
1960	573.4	503.7	389.2	350.0	65.8	54.6	36.8	1,296	104	180.7	66.2	71.8	68.2	94.9	88.7
1961	584.6	520.1	401.2	364.4	67.0	56.3	35.9	1,365	90	183.7	66.7	70.6	72.0	94.5	89.6
1962	622.9	560.3	420.2	385.3	69.7	60.0	38.4	1,492	118	186.5	72.2	77.6	75.0	94.8	90.6
1963	647.9	590.5	436.2	404.6	73.4	64.6	40.8	1,642	151	189.2	76.5	80.6	77.4	94.5	91.7
1964	683.1	632.4	466.7	438.1	74.9	67.4	47.0	1,561	191	191.9	81.7	85.9	82.0	94.7	92.9
1965	726.4	684.9	497.7	473.2	78.9	73.4	54.4	1,510	216	194.3	89.2	93.1	88.8	96.6	94.5
1966	773.8	749.9	525.1	511.9	79.2	76.0	63.5	1,196	217	196.6	97.9	101.0	96.5	99.8	97.2
1967	793.9	793.9	546.3	546.3	77.5	77.5	65.5	1,322	240	198.7	100.0	100.0	100.0	100.0	100.0
1968	830.8	864.2	570.8	591.0	81.7	86.6	67.8	1,546	318	200.7	105.7	105.4	105.5	102.5	104.2
1969	853.2	930.3	587.6	634.4	81.9	93.3	75.6	1,500	413	202.7	110.7	107.4	117.4	106.5	109.8
1970	849.0	976.4	610.0	689.5	77.1	94.0	79.7	1,469	401	204.9	106.6	99.4	119.5	110.4	116.3
1971[5]	872.1	1,050.4	634.6	744.4	83.7	109.4	81.2	2,085	497	207.0	106.8	102.1	116.8	113.9	121.3
1972[5]	928.3	1,151.8	662.0	795.1	89.5	123.6	88.4	2,378	576	208.8	114.4	113.2	126.8	119.1	125.3

[1] 1967 dollars calculated by Forest Service, except "Expenditures for new construction", 1969-72.
[2] Manufacturers' shipments.
[3] As of July 1.
[4] Index for city wage earners and clerical workers.
[5] Preliminary.

Sources: Gross national product, disposable personal income, and expenditures for new plant and equipment, Council of Economic Advisers. 1950-59, *Economic report of the President, January* 1973 (*52*); 1960-71, *Economic indicators*, February 1973 (*51*).

Expenditures for new construction, U.S. Department of Commerce, Bureau of the Census. *Value of new construction put in place*, Construct. Reps. Ser. C30 (*55*).

Number of housing starts, U.S. Department of Commerce, Bureau of the Census. *Housing Starts*, Construct. Reps. Ser. C20 (*48*).

Mobile homes, U.S. Department of Commerce, Bureau of Competitive Assessment and Business Policy. *Construction review*, Monthly Indust. Rep. (*56*).

Population, U.S. Department of Commerce, Bureau of the Census. *Population estimates and projections*. Curr. Pop. Reps. Ser. P-25.

Index of industrial production 1950-1971, Board of Governors of the Federal Reserve System. *Industrial production*, 1971 edition; U.S. Department of Commerce, Bureau of Economic Analysis, *Survey of current business*, March 1973 (*59*).

Wholesale price index, U.S. Department nf Labor, Bureau of Labor Statistics. *Wholesale prices and price indexes* (*62*).

Source: U. S. Department of Agriculture, Forest Service, The Demand and Price Situation for Forest Products, 1972-73, Miscellaneous Publication No. 1239, July 1973.

Page intentionally left blank

Appendix 2

SAWMILLS, VENEER AND PLYWOOD PLANTS, POST, POLE AND PILING PLANTS, AND SPECIALTY PRODUCTS PLANTS IN THE SIX-COUNTY AREA, ALABAMA

Page intentionally left blank

LARGE SAWMILLS

County	Firm	Manager	Address	Products
Greene	* Colson Lumber Co.	-	South Prairie St. Eutaw, Ala. 35462	Lumber
Marengo	* Linden Lumber Co.	D. H. Overmyer, Pres.	Box 506 Linden, Ala. 36748	Hardwood lumber
Marengo	* Miller & Co., Inc.	A. P. Hetherington	Box 2717 West Jackson St. Demopolis, Ala. 36732	Hardwood lumber
Marengo	Thomas & Miller Co.	C. A. Miller	Hwy. 43 Linden, Ala. 36748	Yellow pine and hardwood lumber
Pickens	* Carpenter & Shirley Lumber Co.	Walon L. Carpenter, Pres.	Drawer L Gordo, Ala. 35466	Lumber
Pickens	* Floyd Lumber Co.	C. S. Floyd, Pres.	Box F Gordo, Ala. 35466 (Hwy. 85 E.)	Pine and hardwood lumber, hardwood dimension
Pickens	* Lewis Bros. Lumber Co.	A. B. Lewis, Pres.	Box 334 Aliceville, Ala. 35442 (Columbus Rd.)	Lumber
Pickens	* McShan Lumber Co.	J. T. McShan, Pres.	Box 27 McShan, Ala. 36753	Lumber, wood chips, shavings, etc.
Pickens	* Pate Lumber Co.	S. F. Pate, Pres.	Box 112 Carrollton, Ala. 35447	Lumber
Pickens	* C. E. Reid Lumber Co.	G. K. Smith, Pres.	Box 428 Reform, Ala. 35481	Lumber
Pickens	* Summerville Bros. Lumber Co., Inc.	J. M. Summerville, Treas.	Box 425 Aliceville, Ala. 35442 (Old Cochrane Rd.)	Lumber, hardwood dimension

* Also planer mill.

(continued)

LARGE SAWMILLS (continued)

County	Firm	Manager	Address	Products
Sumter	* Allison Lumber Div., American Can Co.	-	Bellamy, Ala. 36901	Lumber
Sumter	* Miller & Co., Inc.	C. H. Hamilton, Mgr.	Box 549 York, Ala. 36925	Lumber
Sumter	* Panola Sawmill	-	Panola, Ala.	Lumber
Tuscaloosa	* Newton Bros. Lumber Co.	Charles Newton, Pres.	Drawer 2627 Tuscaloosa, Ala. 35401 (2500 25th St.)	Rough lumber, pallets, ski boards
Tuscaloosa	* Newton Lumber Co.	Park Patton, Mgr.	Box 2181 Tuscaloosa, Ala. 35401 (Hwy. 82)	Lumber
Tuscaloosa	* Pearson Lumber Co.	Emmet O. Dendy and Willys H. Pearson	Box 1548 Tuscaloosa, Ala. 35401 (1151 Hargrove Rd.)	Lumber and chips
Tuscaloosa	* Ray E. Loper Lumber Co.	H. W. Hamilton, Mgr.	P. O. Box 2057 Tuscaloosa, Ala. 35401 (1400 15th St.)	Lumber
Tuscaloosa	George Rose Lumber Co.	-	P. O. Box 309 Northport, Ala. 35476	Lumber and specialty mill
Tuscaloosa	* Albert A. Holman Lumber Co.	Richard Holman, Pres.	Box 369 Northport, Ala. 35476 (2930 13th St.)	Lumber and hardwood dimensions
Tuscaloosa	* W. G. Sullivan Lumber Co.	W. G. Sullivan, Pres.	Box 122 Northport, Ala. 35476 (Route 3, Brownville)	Lumber and chips
Tuscaloosa	* W. P. Sartain Lumber Co.	-	Box 436 Coker, Ala. 35452	Lumber

* Also planer mill.

SMALL SAWMILLS

County	Firm	Manager	Address	Products
Hale	Livingston Sawmill	-	Box 77 Akron, Ala. 35441 (Route 1)	Lumber
Hale	Chess Wilson Sawmill	-	Route 2 Havana, Ala. 35467	Lumber
Marengo	Greene Coats Sawmill	-	Box 218 Demopolis, Ala. 36732 (Old Spring Hill)	Lumber
Marengo	Dunn's Cedar Mill	Cecil A. Dunn	Box 571 Linden, Ala. 36748 (Hwy. 43)	Cedar lumber
Marengo	Rolison Saw Mill	-	Sweet Water, Ala. 36782 (Route 1)	Lumber
Pickens	Abrams Lumber Co., Inc.	J. L. Abrams, Pres.	Route 5 Gordo, Ala. 35466	Lumber
Pickens	Millard Johnson	Millard Johnson	700 Second Ave., S. E. Aliceville, Ala. 35422	Lumber
Sumter	Sumter Manufacturing Co.	N. G. Watkins	Box 353 York, Ala. 36925	Pine lumber
Tuscaloosa	Pete Gamble Sawmill	-	Coffee Junction, Ala. 35111 (Route 1, McCalla)	Lumber
Tuscaloosa	Hale County Lumber, Inc.	-	Drawer 2627 Tuscaloosa, Ala. 35401 (Moundville)	Lumber
Tuscaloosa	Patton Lumber Co.	-	Box 1547 Tuscaloosa, Ala. 35401	Lumber
Tuscaloosa	Richardson Brothers Lumber Co.	-	Box 356 Northport, Ala. 35476	Lumber

(continued)

SMALL SAWMILLS (continued)

County	Firm	Manager	Address	Products
Tuscaloosa	B. B. Springer Lumber Co.	-	Echola, Ala. 35457	Lumber
Tuscaloosa	E. L. Young Sawmill	-	Brookwood Ala. 35444	Lumber
Tuscaloosa	Friday Lumber Co., Inc.	Hugh Friday, Pres.	P. O. Box 244 Tuscaloosa, Ala. 35401 (1914 Eutaw Hwy.)	Lumber

SPECIALTY PRODUCTS

County	Firm	Manager	Address	Products
Greene	Eutaw Hardwood Dimension Co.	C. P. Winters, Pres.	Box 61 Eutaw, Ala. 35462	Hickory and ash handle blank
Greene	Payne Lumber Co.	W. P. Payne	P. O. Box 191 Boligee, Ala 35443	Crossties
Hale	Chairs, Inc.	D. K. Rudder, Pres.	Box 477 Greensboro, Ala. 36744	Rocking chairs, stools, etc.
Marengo	Demopolis Hickory Mill	David S. Turner, Pres.	P. O. Box 236 Demopolis, Ala. 36732	Hickory dimension stock, hickory and oak turnings
Sumter	Eclectic Wood Products	-	York, Ala. 36925	-
Sumter	Moldwood Corp.	M. W. Bancroft, Pres.	York, Ala. 36925 (Hwy. 11)	Molded and wooden paper roll plugs
Sumter	York Tie & Lumber Co.	Berry Tew, Pres.	Box 113 York, Ala. 36925 (Hwy. 11)	Crossties
Sumter	Livingston Wood Products, Inc.	Tom Newhauser, V. Pres.	P. O. Box EG Livingston, Ala. 35470	Pallets, skids
Tuscaloosa	Tusco Hardwood Manufacturing Co.	Nell Marlow, Sec. and Treas.	P. O. Box 326 Tuscaloosa, Ala. 35401 (117 1/2 Main Ave. Northport)	Panels, drumsticks, handles, clubs, miniature baseball bats
Tuscaloosa	The Fitts Industries, Inc.	Frank Fitts, Jr., Pres.	P. O. Box 1368 Tuscaloosa, Ala. 35401 (2227 Greensboro Ave.)	Large turned furniture parts, bed posts
Tuscaloosa	Dexter D. Hulsart Co., Inc.	Dexter D. Hulsart, Pres.	P. O. Box 1878 Tuscaloosa, Ala. 35401 (2700 31st St.)	Hardwood dimension

(continued)

SPECIALTY PRODUCTS (continued)

County	Firm	Manager	Address	Products
Tuscaloosa	Miller Box Co.	Gordon Miller and Jimmy Hinton, Ptnrs.	P. O. Box 1116 Tuscaloosa, Ala. 35401 (1701 17th St.)	Boxes and containers
Tuscaloosa	Montgomery Woodworks, Inc.	Ed Montgomery, Pres.	P. O. Drawer M Tuscaloosa, Ala. 35401 (1033 19th Ave. E.)	Millwork
Tuscaloosa	Newton & Patton, Inc.	Herbert E. Newton, V. Pres.	P. O. Box 5801 Tuscaloosa, Ala. 35401	Crates and pallets
Tuscaloosa	Cottondale Wood Products, Inc.	Joe Morrison, Mgr.	P. O. Box 1846 Tuscaloosa, Ala. 35401	Wooden pallets
Tuscaloosa	Holman Wood Products Co.	Richard P. Holman, Pres.	P. O. Box 369 Northport, Ala. 35476	Pallets, boxes, and skids
Tuscaloosa	Northport Box Co.	John Skelton and Gordon Miller, Co-Mgrs.	P. O. Box 1116 Tuscaloosa, Ala. 35401	Wooden ammunition boxes

VENEER PLANTS

County	Firm	Manager	Address	Products
Greene	Sumter Veneer Works	Carl W. Browder, Pres.	Drawer 351 Eutaw, Ala. 35462	-
Marengo	A. R. Taylor Veneer Co., Inc.	A. R. Taylor, Pres.	P. O. Box 719 Demopolis, Ala. 36732	Hardwood plywood
Pickens	Aliceville Veneers, Inc., Div. of Buchanan Hardwoods, Inc.	Jerald H. Power, Mgr.	P. O. Box 424 Selma, Ala. 36701	-
Sumter	Sumter Plywood Corp.	Harry Duncan, Plt. Mgr.	Box 1017 Livingston, Ala. 35470	Pine plywood
Tuscaloosa	Thompson & Swaim Veneer, Inc.	M. M. Swaim, Gen. Mgr.	Box 2468 Tuscaloosa, Ala. 35401 (3200 16th Ave.)	Commercial veneer, furniture-grade plywood

POST, POLE AND PILING PLANTS

County	Firm	Manager	Address	Products
Marengo	Linden Creosote Co.	Tom Jones	P. O. Box 413 Linden, Ala. 36748 (402 Old Myrtlewood Rd.)	-
Sumter	C & L Timber Co., Inc.	J. B. Lloyd, Jr., Pres.	Drawer 69 York, Ala. 36925	Logger
Tuscaloosa	Brown Wood Preserving Co.	Ray Bobo, V. Pres.	P. O. Box 34 Brownville, Ala. 35445	Treated poles and pilings

Page intentionally left blank

Appendix 3

A PARTIAL LIST OF LOGGERS IN THE SIX-COUNTY AREA, ALABAMA

Greene County

Greene County Wood Products
c/o Edgar Williams and
Jim Langham
Wilson Ave.
Eutaw, Alabama 35462

Willie Knox
Route 1, Box 74
Knoxville, Alabama 35469

Cliff A. Logan
Wilson Ave.
Eutaw, Alabama 35462

John Phares
Wheatland Cir.
Eutaw, Alabama 35462

Hale County

Fred Atchison
505 Cork St.
Greensboro, Alabama 36744

Paul James
Greensboro Wood Products
Hwy. 14
P. O. Box 9
Greensboro, Alabama 36744

Charlie Langham
Route 1
Akron, Alabama 35441

Lloyd Phares
Akron, Alabama 35441

Marengo County

E. H. Coats
Route 1
Box 113-A
Gallion, Alabama 36742

Green Coats
Route 1
Box 127-B
Gallion, Alabama 36742

A. W. Compton, Jr.
Compton Timber Co.
Nanafalia, Alabama 36764

N. B. Glass
Route 1, Box 14
Thomaston, Alabama 36783

Charles W. Hasty
Route 1
Box 63
Thomasville, Alabama 36784

A. A. Hinson, Jr.
Route 1, Box 45
Linden, Alabama 36748

Jerry Loftin
Route 1
Sweet Water, Alabama 36782

Linden Lumber Co.
Linden, Alabama 36748

Miller and Co., Inc.
Demopolis, Alabama 36732

James Moore
208 W. Oakley Ave.
Linden, Alabama 36748

Maurice Moore
104 South Ave. E.
Linden, Alabama 36748

Berlin McKinney
Myrtlewood, Alabama 36763

Kenneth Orr
Route 2
Thomaston, Alabama 36783

Howard Pope
Route 1
Box 100
Dixon Mills, Alabama 36736

Marengo County (continued)

Tommy Pritchett
Route 2
Box 120A
Sweet Water, Alabama 36782

Rolison Sawmill
Route 1
Sweet Water, Alabama 36782

Rube Smyly
708 Nettles St.
Linden, Alabama 36748

Thomas & Miller Lumber Co.
Linden, Alabama 36748

Sumter County

J. B. Lloyd, Jr.
C & L Timber Co., Inc.
P. O. Drawer 69
York, Alabama 36925

Tuscaloosa County

Sam R. Martin
Vance, Alabama 35490

Appendix 4

SURVEY QUESTIONNAIRES, EXPLANATIONS, AND INTRODUCTORY LETTERS

Page intentionally left blank

Alabama FORESTRY ASSOCIATION

PHONES 262-5219 262-5210 • 660 ADAMS AVENUE - SUITE 101
MONTGOMERY, ALABAMA 36104

October 2, 1973

To Whom It May Concern:

The Industrial Development Division, Engineering Experiment Station, Georgia Institute of Technology, is conducting a wood supply study in the six Alabama counties of Greene, Hale, Marengo, Pickens, Sumter, and Tuscaloosa. The purpose of the study is to assess the supply conditions of sawlogs, lumber, specialty products, and wood residues in the area for potential new uses. The results of the study may develop potential customers for you. We urge you to cooperate fully in this survey by responding to their questionaires where you deem it permissible and practical.

Sincerely,

Joe W. Graham
Executive Vice President

JWG/se

ENGINEERING EXPERIMENT STATION
GEORGIA INSTITUTE OF TECHNOLOGY • ATLANTA, GEORGIA 30332

October 8, 1973

The Industrial Development Division of the Engineering Experiment Station, Georgia Institute of Technology, is conducting a wood supply study in six Alabama counties -- Greene, Hale, Marengo, Pickens, Sumter, and Tuscaloosa. The study is funded by the Economic Development Administration, U.S. Department of Commerce, as a part of the economic development efforts in the area. The results of the study may bring new customers to you.

Would you please spend a few moments of your time in answering the few simple questions posed in the questionnaires? The survey is supported by the Alabama Forestry Association. A letter of recommendation from its executive vice-president, Mr. Joe W. Graham, is enclosed.

All your answers will be kept in strict confidence. Because of the limited time imposed upon the study, I would appreciate your response at your earliest convenience. Please return completed questionnaires in the enclosed stamped, self-addressed envelope.

Sincerely yours,

Tze I. Chiang
Senior Research Scientist

TIC/lgh

Enclosures (3)

LUMBER AND WOOD PRODUCT SUPPLY STUDY

Company: _____

Location: _____ / _____
(Place) (County)

Address: _____

Responding person and position: _____

RAW MATERIAL SUPPLY SITUATION

What kind of raw material do you purchase? _____

_____

_____

Where do you get your raw material supply? _____

_____

_____

How do you view your raw material-supply situation? _____

_____

_____

Do you anticipate any supply problem in the future? _____

_____

_____

FINISHED PRODUCTS

What kind of finished product do you produce? _____

_____

_____

Where do you sell your products? _____

_____

_____

How do you view the market conditions for your products? _____

_____

_____

_____

1972 PRODUCTION

Kind of Finished Product	Softwood or Hardwood	Volume Produced

Days operated in 1972: _____

Number of shifts operated per day in 1972: _____

Production volume per week: _____

_____

_____

RESIDUE DATA

	Sold			Can Make Available for Sale
	Percent	Price	Unit	(Amount per Time Period)
Solid wood wastes	_____	_____	_____	_____ (Per _____)
Not-solid wood wastes	_____	_____	_____	_____ (Per _____)
Total	100%			

Note: Solid wood wastes include slabs, edgings, trims, cull lumber, and other forms except sawdust and shavings. Not-solid wood wastes include sawdust and shavings.

Are your residues of different kinds mixed together? Yes ( ) or No ( ).

Is bark included in your solid wood wastes? Yes ( ) or No ( ).

Date _____

Questionnaire Explanation

LUMBER AND WOOD PRODUCT SUPPLY STUDY

Company: Show full company name.

Location: Give actual mill location and county.

Address: Mailing address.

Responding person and position: Name and title.

RAW MATERIAL SUPPLY SITUATION

What kind of raw material do you purchase? Standing timber, logs, lumber, and others.

Where do you get your raw material supply? Contracting logger, government sale, timber owners, sawmill, etc.

How do you view your raw material-supply situation? Good or bad and explain.

Do you anticipate any supply problem in the future? Identify problem if any and explain.

FINISHED PRODUCTS

What kind of finished product do you produce? Lumber, structural lumber, dimension, etc.

Where do you sell your products? Builders, building material company, furniture plant, pallet plant, etc.

How do you view the market conditions for your products? Good or bad and explain.

If possible, please give marketing conditions such as customer's specification on products, competition, pricing, etc.

1972 PRODUCTION

This should be the actual cut and not be the amount sold, and should be in green lumber tally if it is a sawmill. Obtain best estimate if records are not available. If figures are available for dry lumber only, please so indicate.

Kind of finished product: such as green lumber, kiln dried dressed lumber, dimensional stock, green veneer, plywood, etc.

Softwood or hardwood: select one.

Volume produced: Give volume of each finished product produced in 1972. Lumber volume in board feet; veneer and plywood in square feet of certain thickness; etc.

Days operated in 1972: List the actual number of days the mill operated. This should be the best estimate of actual number of days that the mill operated if records are not available. Maximum is about 250 days based on a five-day work week. This is generally scaled down by holidays, lack of timber, etc.

Number of shifts operated per day in 1972: Indicate how many shifts were operated per day in 1972. One shift is generally eight hours.

Production volume per week: Request an estimated production volume per week on their main products. Be sure to specify unit used in measuring output volume, such as board feet, square feet on 3/8" thickness basis, etc.

RESIDUE DATA

This is the hardest type of information to obtain from woodworking concerns and is subject to the greatest error. Our main interest is to find out what amount of these wood wastes can be made available for sale at current market prices. Wood wastes are classified into two groups, solid wood wastes and not-solid wood wastes, as noted in the questionnaire. Please make an estimate on the amount of wood wastes which can be made available for sale in a certain time period. Be sure to specify a time period ( ) to the amount given in the questionnaire.

TIMBER SUPPLY STUDY
(Loggers)

Company: _____

Location: _____ / _____
Place County

Address: _____

Responding person and position: _____

Years in business: _____

Your cutting or logging area is in _____ miles of _____
(place name)

and it is operating in _____, _____, _____,

_____, _____, _____, _____,

and _____ counties.

1972 DELIVERED VOLUME AND LOG DATA

Kind	Volume Delivered	Type of Customer
Softwood		
Hardwood		

Kind	Average DIB* (inches)	Average Length of Log (feet)
Softwood		
Hardwood		

*Diameter inside bark at the small end of the log.

Please list major logging equipment that you have.

_____ _____

_____ _____

_____ _____

_____ _____

Based on your experience in the area, do you expect any problem in log supply in the future?

_____

_____

_____

_____

_____

_____

_____

_____

Date _____

QUESTIONNAIRE EXPLANATION

CONTRACTING LOGGERS AND TIMBER SUPPLY STUDY

Company: Show full company name.

Location: Give actual mill location and county.

Address: Mailing address.

Responding person and position: Name and title.

Years in Business: Give number of years.

Cutting or logging area: Give a radius in miles of your operating base and give counties in which you have actively operated.

1972 DELIVERED VOLUME AND LOG DATA

(1) Give best estimates on softwood and/or hardwood volume delivered to customers in 1972 and type of your buyers.

(2) Give softwood and/or hardwood delivered in terms of log diameter inside bark (DIB) at the small end of the log. If in doubt, measure a representative sample. Record to the nearest inch. Ask about average length of log and record to the nearest foot.

MAJOR EQUIPMENT

Bob tail truck	Pre-haulers
Farm tractor	Tractor mounted shears
Rubber tire skidders	Hydraulic loaders
Crawlers	Front end loaders
	Feller bunchers

OPINION ON LOG SUPPLY SITUATION

Try to identify any problem concerning timber or log supply in your cutting area.

Page intentionally left blank

REFERENCES

Alabama Forestry Association, Alabama Forest Products, Vol. 16, No. 8, Montgomery, Alabama, July 1973.

Auburn University, Cooperative Extension Service, Analyzing a Lumber Manufacturing Process, Circular R-3, Auburn, Alabama, 1967.

_____, Forest Products Marketing in Alabama, Circular R-22, Auburn, Alabama, 1970.

Bertelson, Daniel F., Alabama Forest Industries, U. S. Forest Service, Southern Forest Experiment Station, New Orleans, Louisiana, 1972.

Hair, Dwight, and Robert B. Phelps, The Demand and Price Situation for Forest Products, 1972-73, Miscellaneous Publication No. 1239, U. S. Department of Agriculture, Forest Service, Washington, D. C., July 1973.

Hedlund, Arnold, and J. M. Earles, Forest Statistics for Alabama Counties, U. S. Forest Service, Southern Forest Experiment Station, New Orleans, Louisiana, 1973.

Little, Robert L., 1973 Survey of Wood Residues in Alabama, Alabama Cooperative Extension Service, Auburn University, Auburn, Alabama, July 1973.

Scholarship, Education and Defense Fund for Racial Equality, Inc., Greene County, Alabama: A Balance Sheet for Action, prepared for the Greene County Economic Development Commission, Eutaw, Alabama, 1971.

_____, Greene County, Alabama: An Opportunity for Business, prepared for the Greene County Economic Development Commission, Eutaw, Alabama, April 1972.

Southern Forest Resource Analysis Committee, The South's Third Forest, 1969.

State of Alabama, Forestry Commission, Distribution of Planting Stock by County, Montgomery, Alabama, 1950 to 1972.

_____, Forest Land Ownership Lists of 500 Acres or More, Montgomery, Alabama, 1969.

_____, Production of Forest Products by County in Alabama, Montgomery, Alabama, 1958 to 1972.

Sternitzke, Herbert S., Alabama Forests, U. S. Forest Service, Southern Forest Experiment Station, New Orleans, Louisiana, 1963.

_____, Forest Development Opportunities in North Central Mississippi, U. S. Forest Service, Southern Forest Experiment Station, New Orleans, Louisiana, 1959.

U. S. Department of Agriculture, Forest Service, The Outlook for Timber in the United States, Forest Resource Report No. 20, Washington, D. C., October 1973.

_____, Southern Forest Experiment Station, Forest Statistics for Alabama, New Orleans, Louisiana, December 1953.

_____, Southern Forest Experiment Station, Southern Pulpwood Production, 1972, New Orleans, Louisiana, 1973.

Wade, Larkin, Alabama Forest Resource Analysis, Circular P-92, Cooperative Extension Service, Auburn University, Auburn, Alabama, 1971.